

February 29, 1960

PURCHASING

The Methods and News Magazine for Industrial Buyers

the Executive Approach to Purchasing

How Carrier Corporation's buying
group handles decentralization,
specialization, cost reduction,
and relations with engineers.

Start on page 70



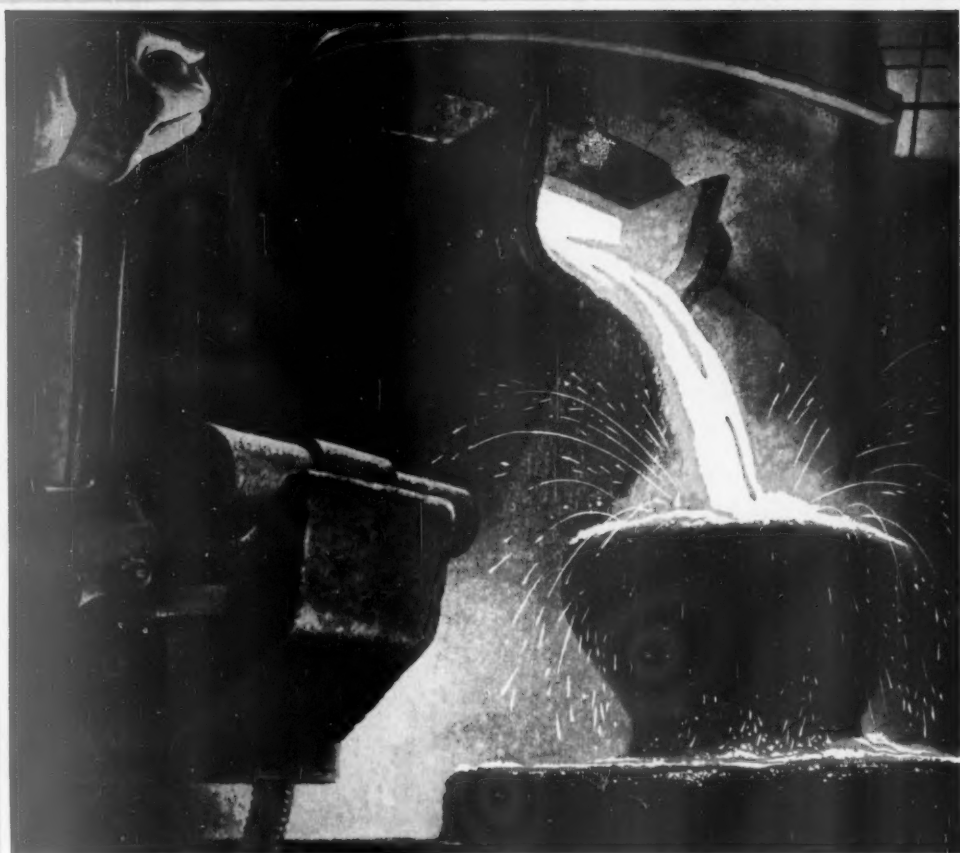
Carrier's Tony Ruediger



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A CONOVER-MAST PUBLICATION

SEVENTY-FIVE CENTS



Melting furnace at Calumet & Hecla, Inc.—Wolverine Division, where Shell Iru Fluid 902 eliminates the danger of hydraulic line fires.

Ready...aim... NO FIRE!

Take 10 high-temperature alloy-melting furnaces, hydraulically operated—each pouring 1500 lbs. of molten metal every hour in close proximity to “live” hydraulic lines—and you can readily see why selection of hydraulic fluids is important to Calumet & Hecla’s Wolverine Tube Division.

Now the operation is made more reliable by the use of Shell Iru Fluid 902, a water-in-oil emulsion type fluid. Iru[®] Fluid was C & H’s choice, after carefully

studying other commercial hydraulic fluids—for many reasons:

1. Iru Fluid will not support combustion.
2. Iru Fluid has excellent lubricating properties.
3. Iru Fluid has hydraulic efficiency and equipment compatibility.
4. Iru Fluid is economical, costing about one-third less than other fire-resistant fluids.
5. Iru Fluid’s bright yellow color makes it easy to spot and trace leaks.

In plant after plant, operators find that these advantages assure maximum safety to both personnel and equipment.

If you have a hydraulic line fire hazard, we suggest that you have the Shell Industrial Products Representative show you the many advantages in Iru Fluid 902; or write to Shell Oil Company, 50 W. 50th St., New York 20, N. Y., or 100 Bush St., San Francisco 6, Calif. In Canada: Shell Oil Company of Canada, Ltd., 505 University Ave., Toronto 2, Ontario.

SHELL IRUS FLUID 902

the low-cost, fire-resistant hydraulic fluid



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For More Information about ad on facing page Write No. 154 on Inquiry Card—pg. 32→



New Century Electric motor starts on 50% less current

Here is the answer to power company limits on starting current for *single phase* motors . . . a new Century Electric capacitor-start motor with a really low starting current. In the 20 hp size the *starting* current is 220 amps . . . as low as that for a normal 10 hp motor.

Solve many problems—Because of the high cost of running three phase power to many areas, most utilities prefer to supply single phase power. Now heavier equipment can be started on single phase power. This new motor provides enough horsepower to start and operate equipment like . . . large irrigation pumps, crop and hay dryers and hammermills on an open clutch.

Reliable operation—Insulation is bonded "Mylar" and varnish . . . gives tough mechanical protection, high dielectric strength and resistance to

moisture. Motor is smooth and quiet running because of carefully balanced rotor. Rotor laminations are skewed for quiet operation. High pressure aluminum casting gives rotor winding bars high density.

Capacitor box comes in separate weather-protected enclosure . . . means it can be mounted conveniently next to control device or wherever space can be best utilized.

Variety of enclosures—The new Century Electric CPF motor is available in totally-enclosed and dripproof enclosures. Sizes range from 7½ to 20 hp . . . speeds 1200 and 1800 rpm.

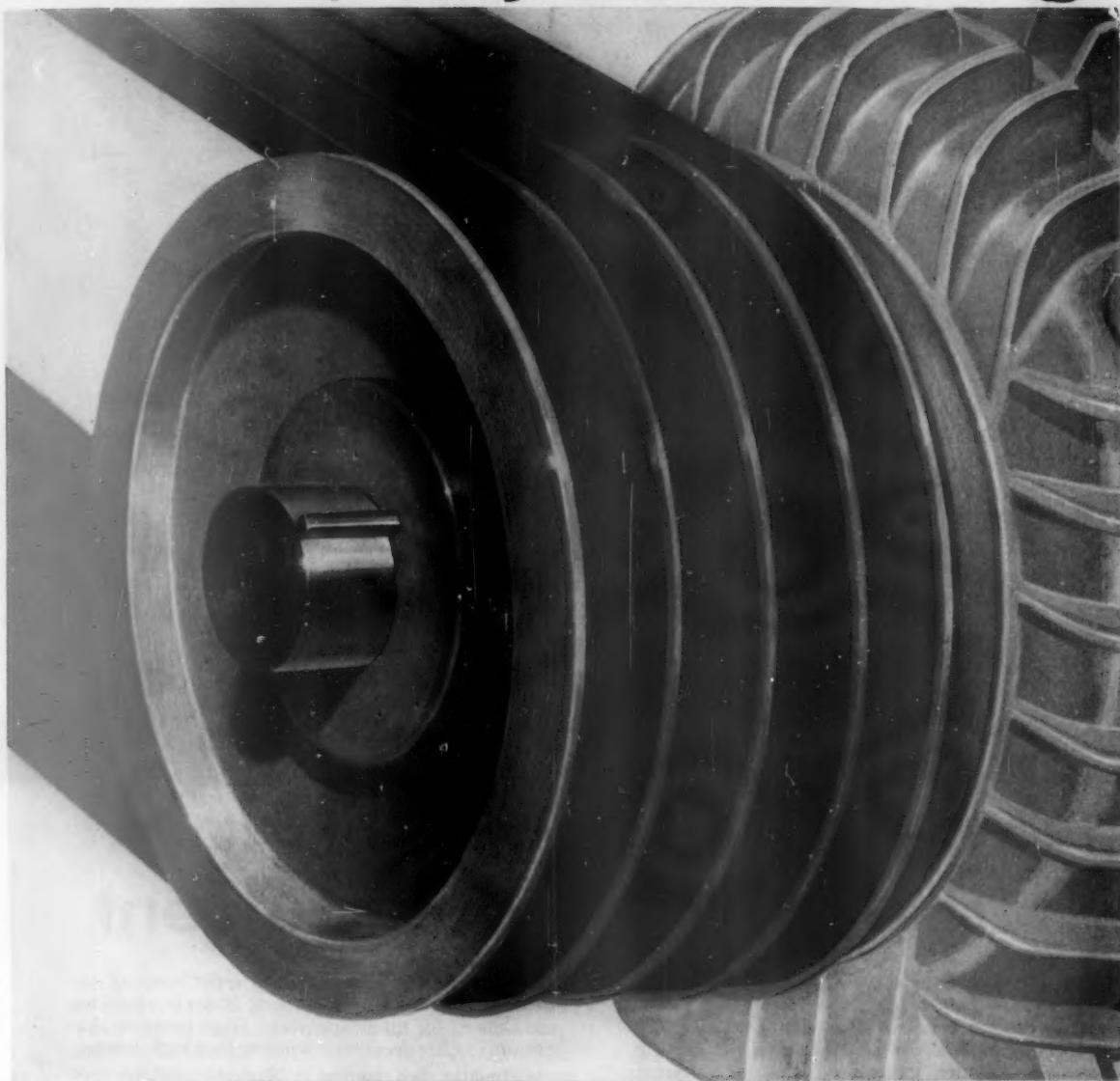
For more information contact your nearest Century Electric Sales Office or Authorized Distributor. For detailed information on motor applications write for the new Century Electric Motor Application Guide . . . bulletin 270A. For *more* than a motor . . .

CENTURY ELECTRIC COMPANY

St. Louis 3, Missouri Offices and Stock Points in Principal Cities

Century
59-16

Get sure, easy belt matching!



Insist on V-belts reinforced with **DACRON**[®] POLYESTER FIBER

You'll put an end to matching problems when you ask for V-belts reinforced with Du Pont "Dacron"* polyester fiber.

Available at no extra cost, V-belts reinforced with Du Pont "Dacron" have outstanding dimensional stability—won't shrink or stretch in storage. This assures positive matching for fast installation . . . cuts down-

time for adjustments . . . reduces costly inventories. And these belts last up to 50 times longer, too!

Remember, to be sure of the very best, longest-lasting V-belts—insist on V-belts reinforced with "Dacron". Du Pont makes the "Dacron" fiber used by belt manufacturers in producing their finest-quality V-belts.

Enjoy "The Du Pont Show With June Allyson"—Monday Nights—CBS-TV

FREE BOOKLET: "Du Pont 'Dacron' Sets New Standards for V-Belt Performance". Write: E. I. du Pont de Nemours & Co. (Inc.), 31E Centre Road Bldg., Textile Fibers Dept., Wilmington 98, Del.

*"Dacron" is Du Pont's registered trademark for its polyester fiber.



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WOLVERINE LEVEL-WOUND COILS

permit tubing to unwind at high speeds without danger of tangling or snarling.

Save with WOLVERINE Level-Wound Coils



WOLVERINE LEVEL-WOUND COILS

are ideal for feeding automatic equipment — often release operators for other duties.

WOLVERINE LEVEL-WOUND COILS

reduce tube handling—save time in assembly line operations.



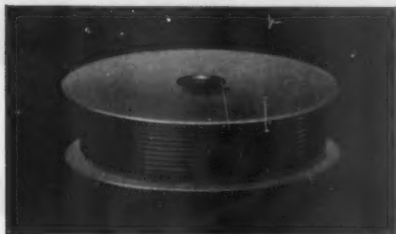
WOLVERINE LEVEL-WOUND COILS

permit you to stock more tube in less space — help reduce inventory problems.



WOLVERINE LEVEL-WOUND COILS

contain tubing made the Tubemanship way—quality controlled tubing that is backed by research, years of experience and sound engineering.



Your Wolverine sales representative has the complete story. Why not talk it over with him—let him show you exactly how Wolverine level-wound coils can fit into your manufacturing process to save you time, money and labor. Write, too for your copy of the Wolverine Tubemanship Book.

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WOLVERINE TUBE

DIVISION OF

CALUMET & HECLA, INC.

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Allen Park, Michigan**

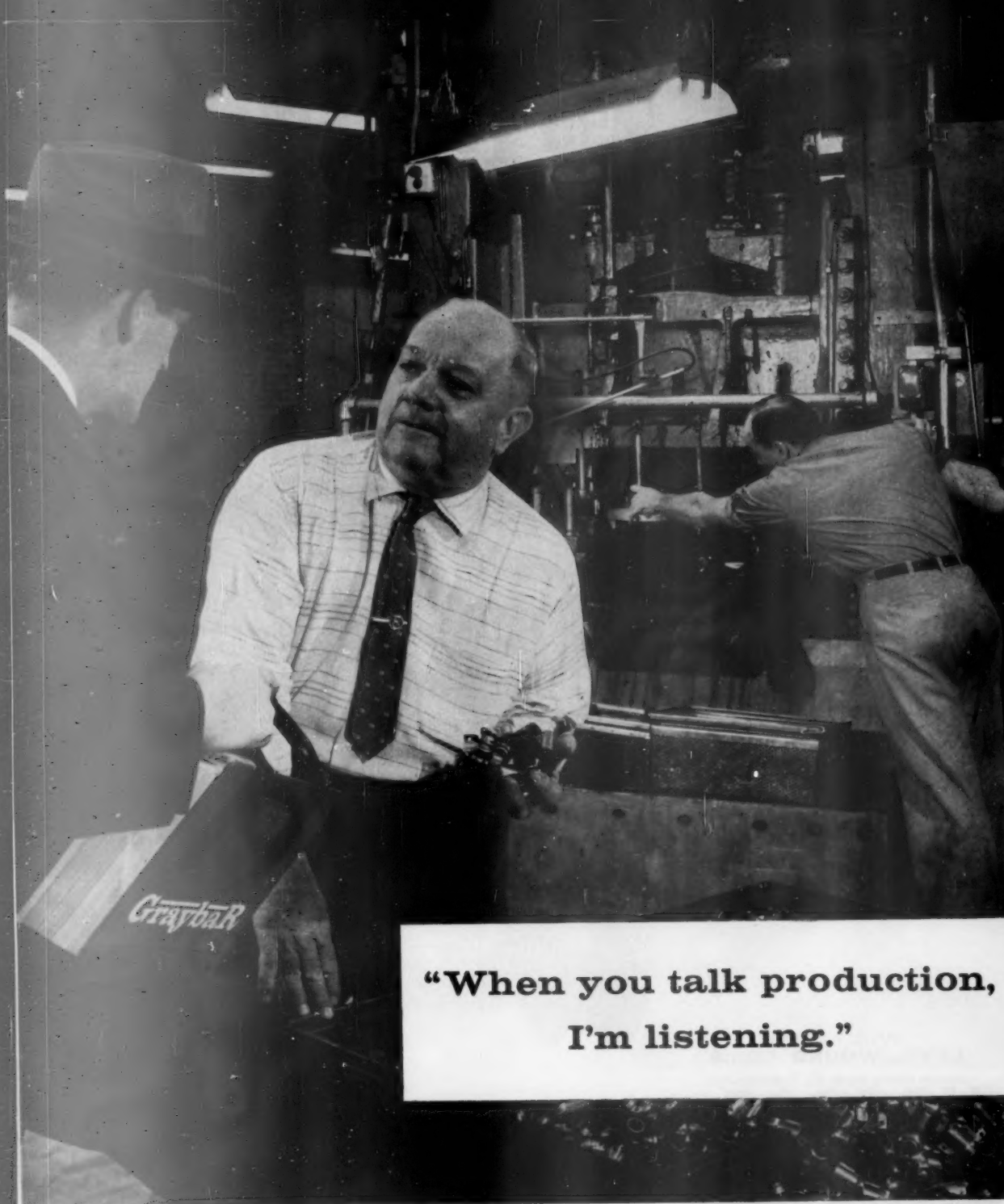
Manufacturers of Quality Controlled Tubing and Extruded Aluminum Shapes

J-8367

PLANTS IN DETROIT, MICHIGAN AND DECATUR, ALABAMA. SALES OFFICES IN PRINCIPAL CITIES.

For More Information Write No. 156 on Inquiry Card—Page 32

FEBRUARY 29, 1960



**"When you talk production,
I'm listening."**

First things first . . . production's the subject when the Graybar man sees the production supervisor. This is why electrical equipment the Graybar man recommends, . . . and the know-how he gives, help keep production rolling.

Graybar is the leading independent electrical distributor. Next time . . . call Graybar. We'll work with you or your electrical contractor.

GraybaR
ELECTRIC COMPANY, INC.

420 LEXINGTON AVENUE, NEW YORK 17, N. Y. • OFFICES IN OVER 130 PRINCIPAL CITIES



PURCHASING

The Methods and News Magazine For Industrial Buyers

FEBRUARY 29, 1960
VOLUME 48, No. 5

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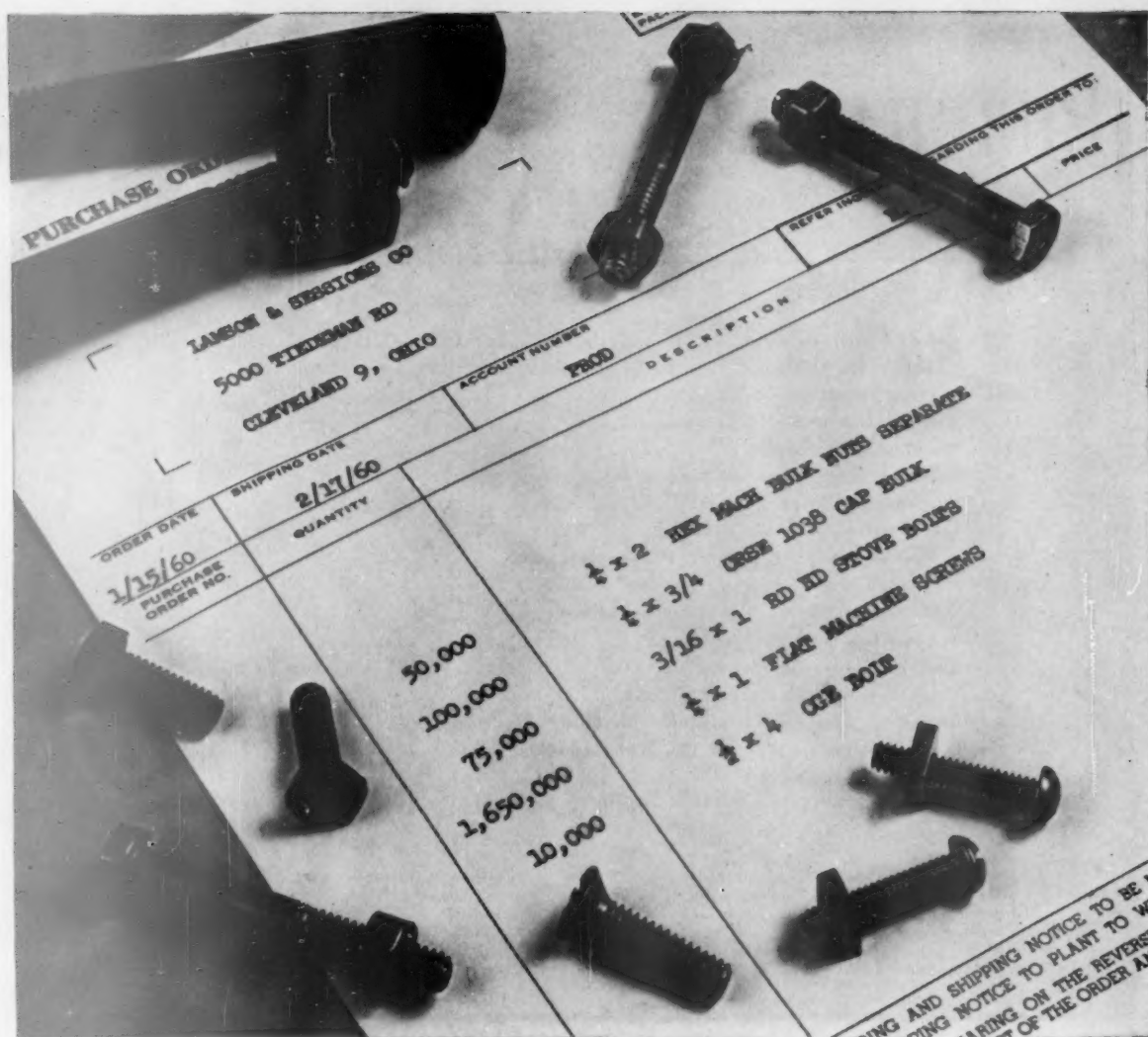
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address; include postal zone number,
and new company name and title. En-
close address label from a recent issue,
if possible. Since mailing labels are
addressed in advance, please allow 5
weeks for change to become effective.



Where to get fasteners when things get rough

In recent months we have been swamped with orders from companies whose "dependable source of supply" had suddenly vanished.

We value these new customers, naturally. Maybe you are one of them. Nevertheless, it's Lamson policy to take care of old customers first. It's an important way of putting meaning into the word "service".

If you buy fasteners in quantity, give serious consideration to making Lamson & Sessions your prime fastener source. Then you will have the best protection available when things get rough.

Why L & S customers are confident customers:

- Production and back-up stocks at *four* fine plants — located to serve you from Chicago, Cleveland, Kent, Ohio and Birmingham, Alabama.
- Complete fastener line — to give you one-order, one-shipment, one-invoice economy.
- Sales engineers in all major areas — factory engineering assistance for your special requirements.
- A 94-year history of continuous production and service.

LAMSON & SESSIONS

5000 TIEDEMAN ROAD • CLEVELAND 9, OHIO
Plants in Cleveland and Kent, Ohio • Chicago and Birmingham



For More Information Write No. 158 on Inquiry Card—Page 32

Pulse of Business

Purchasing agents reacted quickly to the indictment of the major electrical equipment suppliers charged with fixing prices and rigging bids on sales to government and industry. A series of indictments were handed down recently.

Some P.A.'s for electric utilities told PURCHASING Magazine that they were glad to see some action taken against the firms. Others took a "let's wait and see" attitude. Several said the move would open the door to more government intervention into business affairs.

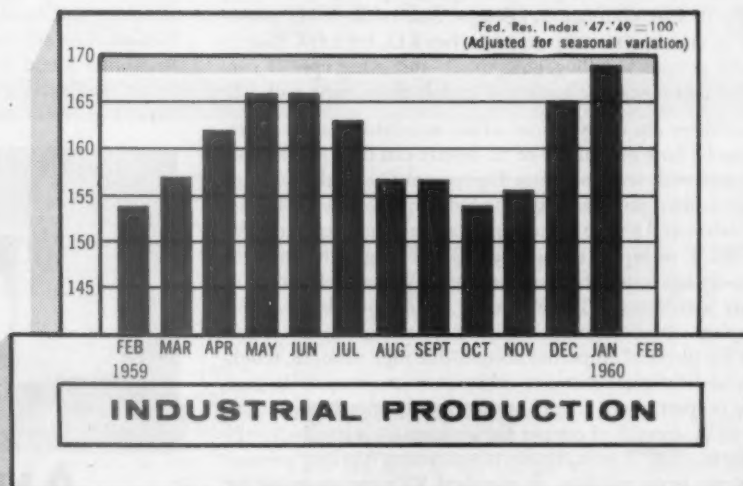
P.A.'s Differ on Price-Fixing Charges

The charges against the big electrical manufacturers are outlined in a number of criminal and civil actions brought by a federal grand jury in Philadelphia. Essentially, General Electric Company, Westinghouse Electric Corporation, Allis-Chalmers Manufacturing Company, I-T-E Circuit Breaker Company, and Federal Pacific Electric Company (among others) are charged with:

- (1) Setting prices which "have been raised, fixed, and maintained at high and artificial levels."
- (2) Restraining, suppressing, and eliminating price competition.
- (3) Agreeing on a formula under which all took turns in submitting low, medium, and high bids to utilities and manufacturers. This formula is alleged to have been called "phase of the moon" or "light of the moon."
- (4) Meeting many times in cities throughout the country to make arrangements and using code names in their communications.
- (5) Allocating among themselves the percentage of government business each would get on specific products—by arranging who would submit the low bid on various contracts.

Purchasing executives spoke up strongly after hearing the text of the indictments. For instance, Robert B. Gear, of Commonwealth Electric Company in Chicago, said "I don't know what the outcome

The Industrial Production Index rose 3% last month to a new peak of 169. Previous high was reached in May and June 1959 (before the steel strike) when the index was at 166.





Anaconda Vibration Eliminator, 1½" I.D. x 17", installed in liquid fill line of a 9000-gallon liquid oxygen tank installed in a boxcar by Lox Equipment Co.

When -297°F LOX hits the piping, standard Anaconda tin bronze flexible connectors absorb the shock

Flexible metal hose connections used to absorb thermal contraction and shock in piping carrying liquefied gases vary widely in size, material and design. Anaconda makes assemblies in stainless steel up to 14 inches I.D. for LOX lines in missile ground handling equipment—and other special connectors and hoses in a variety of metals down to ⅛ inch I.D.

But there are many places where standard Anaconda flexible metal hose assemblies of tin bronze can do a job dependably and with economy. Lox Equipment Co., Oakland, Cal., makes unfired pressure vessels to hold liquefied gases. To protect valves and piping from stresses set up when liquid oxygen at -297°F or liquid nitrogen at -320°F begins to flow, the company has found standard Anaconda Vibration Eliminators highly satisfactory. These flexible connectors designed for damping vibration in rigid piping of refrigeration systems have the physical properties needed—the high strength, toughness, and fatigue resistance inherent in tin bronze. In fact, these properties are greater at very low temperatures—tensile and yield strength of copper and copper alloys are materially higher at -300°F than at room temperature. Working pressure of 60 psi is no problem, as standard VE's are designed for applications up to 300 psi—in some sizes up to 500 psi.

FREE TECHNICAL SERVICE. Anaconda Metal Hose specialists are

constantly working with design engineers on flexible connectors and hose to meet new problems. They may recommend a standard unit or help in the design of a special unit. For information on standard units or engineering assistance, write: Anaconda Metal Hose Division, The American Brass Company, Waterbury 20, Conn. In Canada: Anaconda American Brass Ltd., New Toronto, Ont.

60122



ANACONDA[®]
METAL HOSE

PRODUCTION

of this will be, but maybe we'll get some bids now instead of the same thing across the board. This has been going on for years—it isn't anything new."

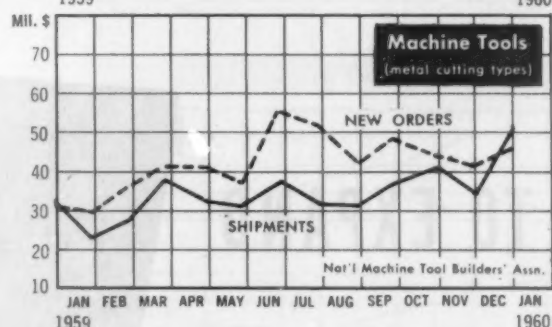
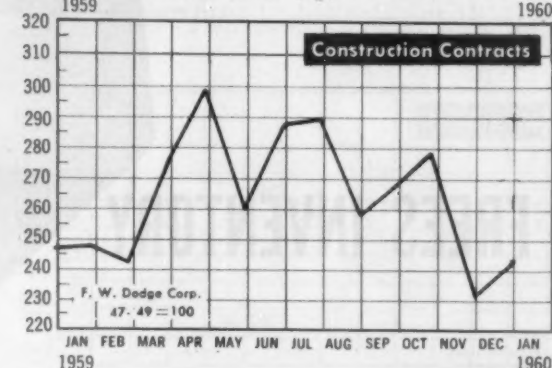
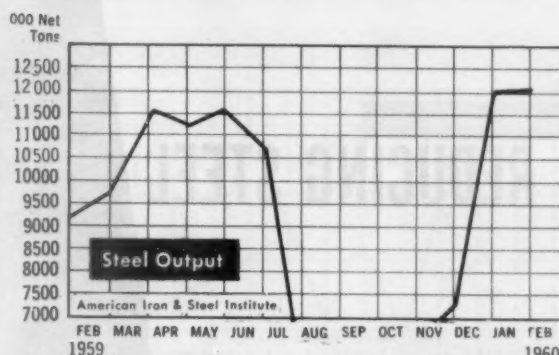
In Reading, Joseph B. Homsher of Gilbert Associates, Inc.—chairman of the Public Utility Buyers' Group of the National Association of Purchasing Agents—said "let the government go through with this and then the air will be cleared." But he asked "why do they pick on the electrical boys? The same situation is going on with mechanical items as well."

A prominent utility purchasing executive—who asked not to be identified—said "everybody in this business has known about this type of thing for a long time. There are a number of pricing practices in the electrical industry that disturb many thinking buyers."

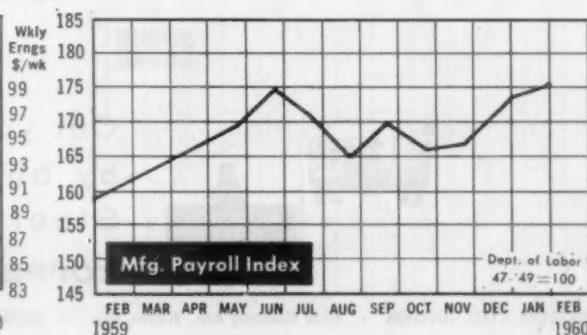
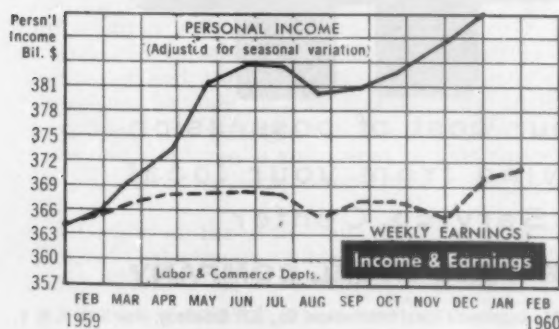
However, he added that "we have made noticeable progress in recent years" in at least two areas: (A) more realistic escalation policies—"it's not 100% yet but it's better than the old price-in-effect-on-date-of-shipment terms"—and (B) prices now reflect the cost of money since manufacturers take into consideration who furnishes the money for large electrical equipment projects.

A somewhat different approach was taken by George H. Cole, of Alabama Power Company in Birmingham. He declared that "some type of organized pricing is necessary in our economy. We don't object to organized pricing unless it's abused."

A number of purchasing executives took the view that the government might use these actions as an excuse to step up further supervision of business. Donald Hogg of Cleveland Illuminating Company said "it's tragic that



LABOR



REDUCING STEEL STOCKS

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TO EXPAND BUSINESS



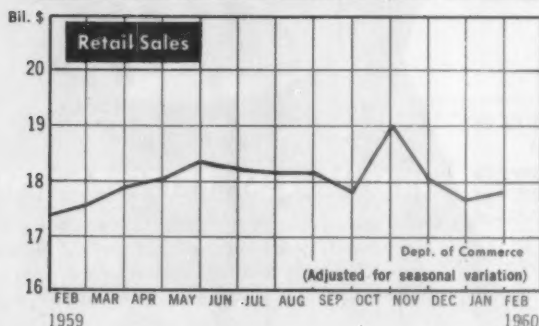
**Cut your cost of possession
by buying from your local
Steel Service Center**

COPPERWELD STEEL COMPANY

ARISTOLOY STEEL DIVISION • 4029 Mahoning Ave., Warren, Ohio • EXPORT: Copperweld Steel International Co., 225 Broadway, New York 7, N. Y.

For More Information Write No. 160 on Inquiry Card—Page 32

TRADE



these large electrical companies—the very people who should be defending the free enterprise system and keeping government out of business—are in this situation inviting more control of business.”

He joined Mr. Homsher in urging a complete airing of the complaint and the defense. “I hope they don’t plead *nolo contendere* (no contest) this time,” he said. “It’s more than just a passing situation. Let’s get the evidence out where we can see it.”

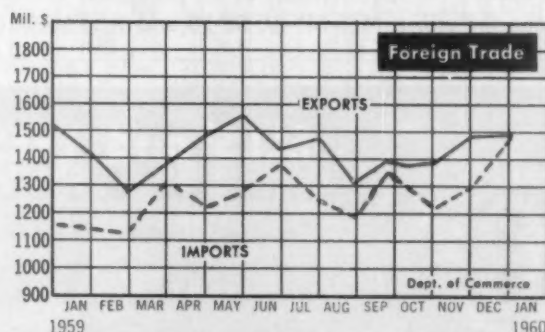
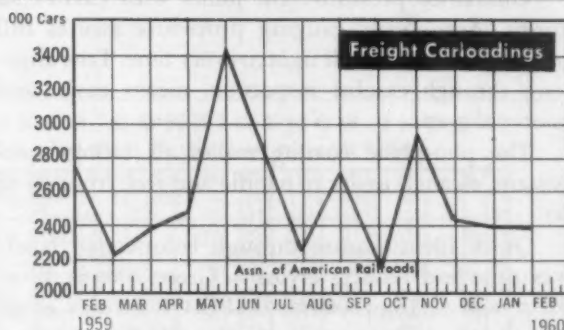
The firms under indictment have given no definite indication yet of their defense to the specific charges announced by the Department of Justice. But some have emphatically stated their fundamental compliance with federal anti-trust laws.

Immediately after the government charges were announced, Ralph J. Cordiner, chairman of General Electric, said that GE “has a written company policy regarding compliance with anti-trust laws that has been in effect since 1946. This directive . . . has been reissued and re-emphasized several times since 1946 and goes further than the anti-trust laws require.”

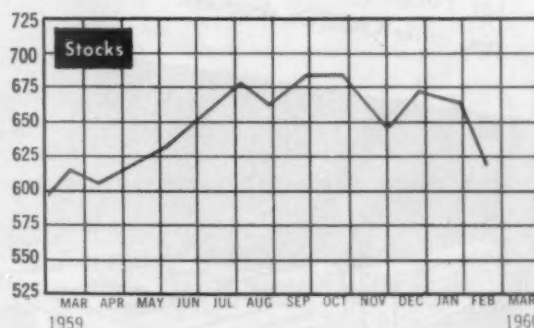
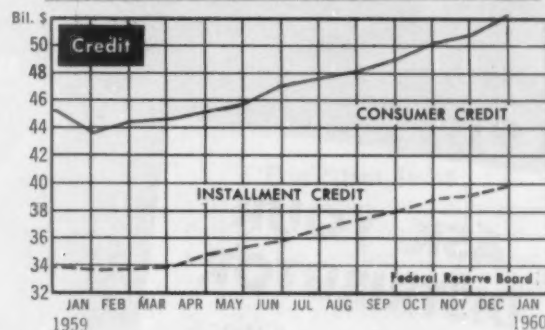
Early this year, Mr. Cordiner revealed that a group of GE executives had been demoted and their salaries reduced for exchanging price information with competitors.

Dale McFeatters, vice president of Westinghouse, echoed these remarks. His company’s objective, he said, is “to comply fully with anti-trust, marketing, and trade regulation laws. No employee is authorized to participate in joint activity with competitors regarding prices.”

Officials at the Anti-Trust Division of the Justice Department told *PURCHASING Magazine’s* Washington Bureau that other areas of this industry are still under investigation.



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Only **CAPITOL**

Forged Steel Fittings give all these benefits

Guarantee pressure-tight joints with CAPITOL fittings. Army-Navy gauging procedure assures full formed threads that will tighten every time. True alignment, through careful inspection, means easier and faster make-up.

The phosphate coating makes all fittings rust-resistant, cleaner, easier to handle and free from oil or dirt.

Quick identification through color-coded labels saves time and reduces errors — Green-2000#, Blue-3000# and Orange-6000#. CAPITOL fittings equal or exceed the requirements of all published specifications including MSS-SP-49, SP-50 and ASTM-A-105.

3000#
and
6000#

UNIONS



INDIVIDUALLY PRESSURE TESTED

More threads means a tight installation every time. Burnished female seat increases surface hardness, prevents galling regardless of repeated make-ups. Definite octagon shape gives firm bite for better wrenching.

ELLS and TEES

CROSSES, STREET ELLS

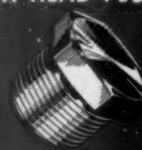
Greatest strength where it's needed most—at the threads—with extra wide bands. True-line assembly assured through careful alignment check.



COUPLINGS

Critical inspection built around Army-Navy gauging procedure assures full formed threads for pressure-tight installations.

BUSHINGS • SQ. HEAD PLUGS • HEX HEAD PLUGS



ASK YOUR DISTRIBUTOR

for Forged Steel Fittings
and other CAPITOL products.



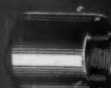
CAPS

Milled threads are perfectly formed to guarantee tightness.



SOCKET WELD COUPLINGS & CAPS

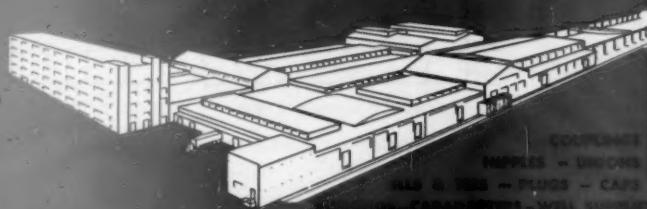
Resists rusting, never perfect fit in each make-up.



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SOLE ONLY THROUGH RECOGNIZED DISTRIBUTORS



CAPITOL

MANUFACTURING CO.
DIVISION OF HARSCO CORP.
COLUMBUS, OHIO

The P.A.'s Outlook

- Buyers Enthused About Business Outlook
- Confidence Index Stays At High Level of 109
- N. A. P. A. Notes Better Production, New Orders

PURCHASING AGENTS are generally confident about the business outlook in the next few months.

In a survey conducted by PURCHASING Magazine—as well as in polls run by the National Association of Purchasing Agents and the Chicago, Cleveland, Pittsburgh, Georgia, and Canadian associations—buyers are indicating surprising enthusiasm about short-term economic conditions.

For example, the revised February Business Confidence Index remains at the 109 level (1958=100). This is the highest mark since last March's figure of 111.

Why this optimism? The purchasing agent for a Kentucky fabricator says "we are expanding our business and our plant is sold out for 1960."

Better Than Usual

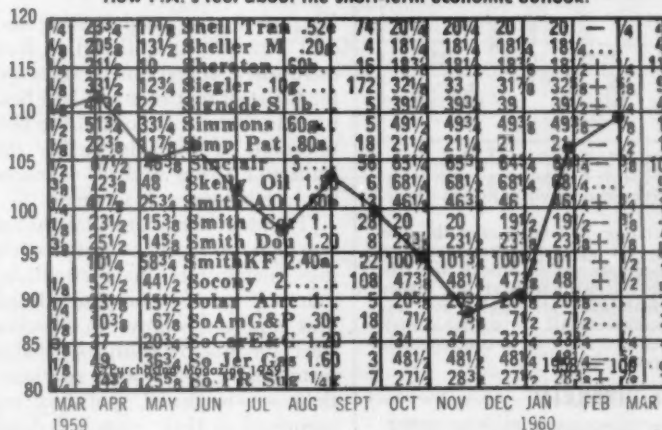
And a purchasing executive for a New Hampshire firm notes "January usually is our slack month. But last month business was better than usual. We expect to do 15%-20% better in 1960 than in the last two years."

The N.A.P.A. survey states that "production is markedly up . . . a similar improvement is reported in new orders." It adds that "in spite of many pressures which would seek to raise prices, the overall movement is only slightly up."

For More Information about ad on facing
←page Write No. 161 on Inquiry Card—pg. 32
FEBRUARY 29, 1960

BUSINESS CONFIDENCE INDEX

How P.A.'s feel about the short-term economic outlook.



A high degree of purchasing agent optimism has kept the revised February Purchasing Magazine Business Confidence Index at 109 (1958=100). This reflects the belief held by many purchasing executives that sales and profits in the next three months will be maintained at a high level.

The report continues, "more regular and steady production schedules permit better control over inventories and most buyers are still working toward keeping inventories at a minimum."

According to the Chicago association, "vendor deliveries continued to improve. Backlog of orders indicated a weakness as a drop was noted . . . while prices and profits remained steady."

It notes also that "strength of prices remains virtually unchanged for the fifth straight month."

The Cleveland group says that the new decade is off to a good start, with production up considerably.

"New orders have more than doubled," it states. "In addition to more orders, we have reports of larger quantities per order, more demand for better delivery, and a noticeable increase in inquiries."

According to the Pittsburgh association, lead time is increasing for production material. Seventeen percent of those surveyed report a 90-day lead time, compared to 11% the previous month.

Production Rising

This association, too, says production is on the rise. Thirty-five percent say production is higher and 12% say it is lower this month; the corresponding figures for the previous month were 31% and 27%, respectively.

Says the Georgia association: "black and galvanized pipe, sheet steel, and some sizes and shapes are still in short supply. But delivery on alloy steel specials is much improved."

The Canadian group says optimistically that "we have carried into 1960 a level of manufacturing built up by nearly continuous improvement during the past year."

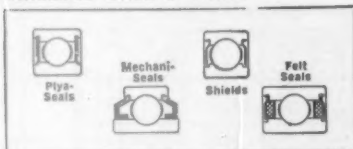
Bearing Buying Guide

NO. 5



A REPORT ON FAFNIR BEARING DEVELOPMENTS AND DISTRIBUTION ACTIVITIES

"BEARING KILLERS" KEPT AT BAY WITH FAFNIR SEALED, SHIELDED BALL BEARINGS



Dirt, dust, chaff, moisture, fumes — there are Fafnir ball bearings with built-in protection against virtually any "bearing killer".

Contact type Plya-Seals offer the best protection yet against contaminants at slow-to-moderate speeds. Shields and labyrinth type Mechan-Seals are for higher speeds. Felt seals are choice for less severe conditions. All are available with one seal or two seals, or in combinations to meet specific needs.

FAFNIR'S "TRIPLETS"



Each of these Fafnir ball bearing pillow blocks is built for standard duty. Each is available with the same seals. The difference? Base-to-center-height dimensions, and bolt-hole spacings . . . to meet most design specifications. Another example of how Fafnir meets the diverse needs of bearing buyers!

FAFNIR "W O" TYPE BEARINGS FOR HIGHEST SPEED SPINDLES

"W O" type bearings are super-precision bearings employing counterbored inner rings and outer ring land riding retainers. The reason for this construction is that at the terrifically high speeds for which this bearing is intended, centrifugal force pushes balls and lubricant toward outer race. Because counterbore is on the inner race, symmetrical lands of outer race afford full support for balls as well as reservoir for lubricant. Maximum ball complement maintains a high degree of rigidity. The bearing is large enough to provide the same spindle nose diameter as for spindles having the ball raceway integral with the shaft. Counterbored inner ring construction permits immediate entry of oil-jet or oil-mist lubrication to inner raceway.

FAFNIR METALLURGICAL INSPECTION TECHNIQUES INSURE QUALITY OF BALL BEARING STEELS

Because of today's high bearing loads and stresses, metallurgists have established stricter quality standards for the steel that goes into ball bearings. In fact, steels today have been improved so much in quality that hitherto existing methods of inspection are becoming inadequate.

To obtain steel that will withstand the high loads and repeated stressings, metallurgists have established exacting specifications for cleanliness and uniformity. In checking steel for micro-cleanliness, Fafnir metallurgists work with specimens that are hardened, polished and examined in their unetched condition with a metallurgical microscope at 100X magnification. These are compared to the Jernkontoret Chart* for size of nonmetallic inclusion. The results determine the "J-K" rating of the steel.

Other techniques used at Fafnir for determining cleanliness are deep acid etching, fracturing of hardened discs and magnetic particle inspection. Ultrasonic testing now permits scrutinization not only of samples, but also of every bit of steel that goes into a ball bearing.



Fafnir metallurgist examines sample of ball bearing steel for micro-nonmetallics at 100X magnification.

With ball bearing requirements becoming more demanding as new highs are sought in load levels, speeds, temperatures, corrosion resistance and miniaturization, Fafnir metallurgists and steel producers are working together on further refinements in inspection methods. Individual customer specifications, too, have contributed greatly to the effort of raising inspection standards for steel.

*A standards chart of the American Society for Testing Materials

NEW FACILITIES...CHICAGO BRANCH OFFICE AND WAREHOUSE

Office and Warehouse are now located at 4640 North Olcott Ave., Telephone Number Underhill 7-8785. The move to more spacious, more convenient facilities is the latest of several made by Fafnir branch offices and warehouses in the The Fafnir Chicago Branch past few years . . . all in the interests of better customer service.

It reflects increased demand for Fafnir products.



FAFNIR DISTRIBUTION NETWORK . . . 26 Branch Offices, 18 Warehouses . . . and for replacement bearings, over 1000 authorized distributors throughout the country.

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*Includes warehouses

FAFNIR

BALL BEARINGS

MOST COMPLETE LINE IN AMERICA

For More Information Write No. 162 on Inquiry Card—Page 32

Price Trends

- **Nonferrous Prices Steady in Quiet Market**
- **See Ample Copper Supply in Months Ahead**

NONFERROUS PRICES have been relatively steady in recent weeks. Lagging buyer demand in many areas has resulted in a quiet tone in many markets.

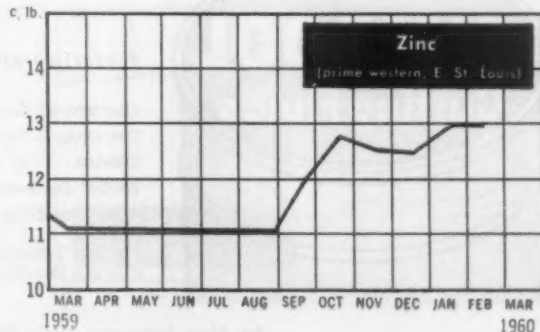
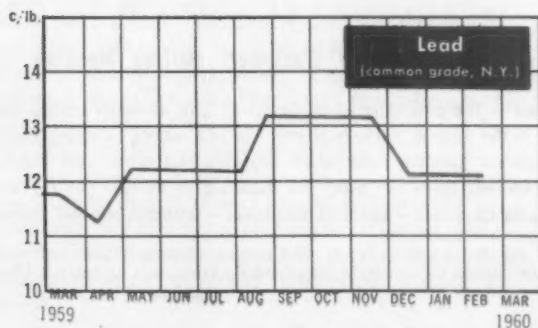
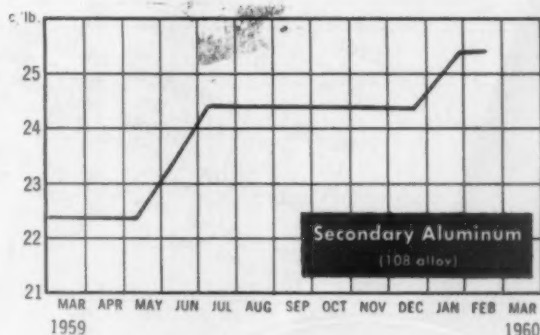
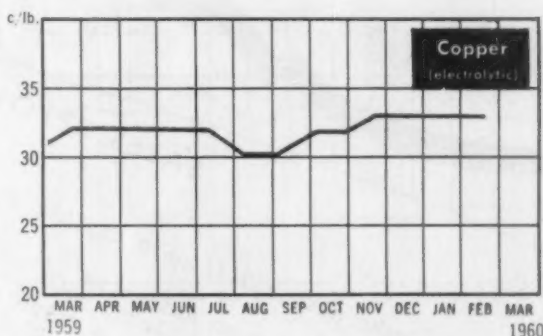
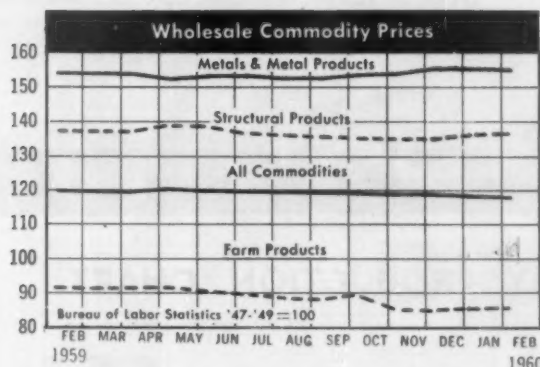
This is the situation in a few of the important commodities bought by P.A.'s:

Zinc: With a $\frac{1}{4}$ cent-a-pound price hike slated on April 1 for special high grade, P.A.'s who have not already completed buying for their March requirements are now rushing to fill their needs. But in general, overall zinc demand is light.

Smelter stocks of slab zinc were 144,471 tons last month, reports the American Zinc Institute. This represents a drop of slightly less than 10,000 tons. Production was 73,326 tons—an increase of 3700 tons from the previous month.

Tin: Tin prices are moderately firm, with a fair amount of buying taking place. With London and Singapore prices holding steady, prices in the United States have had a tendency to remain constant. Most buying here recently has been for small lots.

In May, the United Nations will start discussions on the subject of renewing the International Tin Agreement. At present, all indications are that the agreement will be renewed—without any major changes or variations—when it expires on June 30, 1961. (Turn Page)



Production doubled— and then some!

CIMCOOL S2 can help you reach new production highs, just as it did in this spectacular instance. Its consistent record of success has made CIMCOOL the world's best-selling chemical cutting fluid. (Company name supplied on request)

DAILY PRODUCTION CHART



SALES REPORT

2

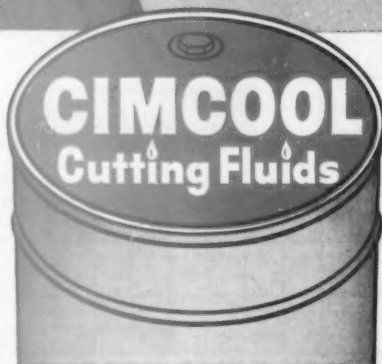
make air conditioners at this division.

The job was an automated drillhead line where cast iron compressor blocks are milled, drilled, tapped and reamed. Replaced a soluble oil with Cimcool S2 at a 1:45 dilution, in a 10,000 gallon central system.

Result: production of compressor blocks increased from 167 pieces in an 8 hour shift to 400 pieces in an 8 hour shift. These records show that on some shifts production reached 715 blocks!

The system was filled with Cimcool S2 over two years ago and has since been changed only once.

Dick Riedel
Cincinnati Office



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CIMCUT Concentrates (AA, NC, SS) — For every job requiring an oil-base cutting fluid.

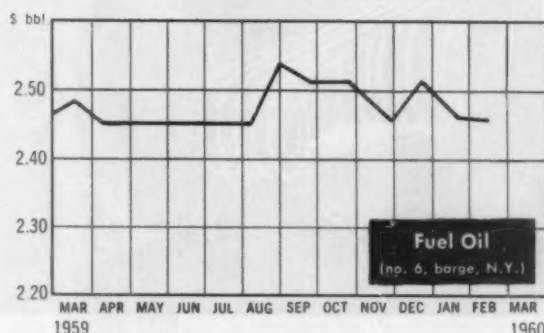
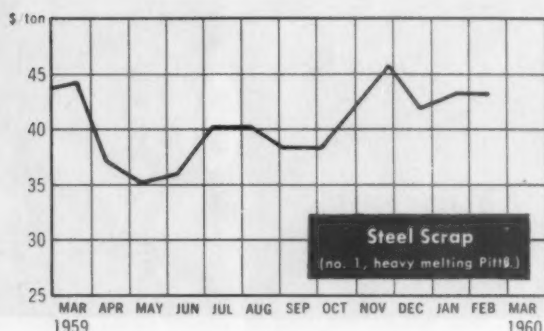
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For full information on the complete family of CIMCOOL Cutting Fluids, call your CIMCOOL Distributor. Or contact Cincinnati Milling Products Division, Cincinnati 9, Ohio.

®Trade Mark Reg. U. S. Pat. Off.

For More Information Write No. 163 on Inquiry Card—Page 32

Price Trends



Copper: Recent labor agreements with major copper producers indicate that supplies will be ample in the months ahead. The supply of copper for March delivery, though, is tight—with just about all of next month's production already committed.

Brass mills are not doing the business they had expected earlier in the year. Their backlogs are small and their new orders are not advancing to any marked degree.

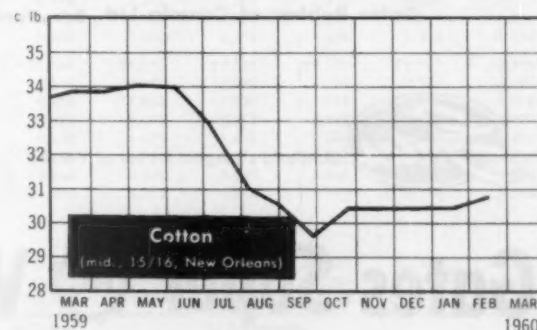
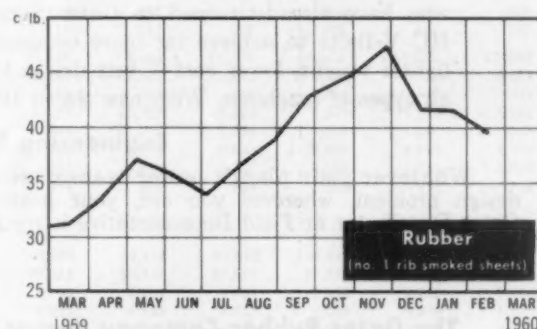
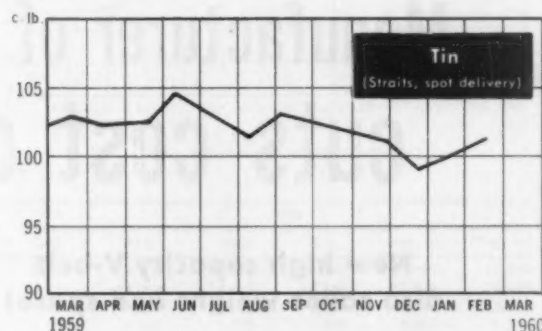
Lead: P.A.'s have been buying for their March requirements at a moderate pace. Many sales represent fill-in orders made by buyers because of unexpected increases in production plans.

Mine output of recoverable lead declined two percent to 20,900 tons, according to the latest monthly report of the Bureau of Mines. Producer inventories were 106,600 tons—the lowest since January 1958.

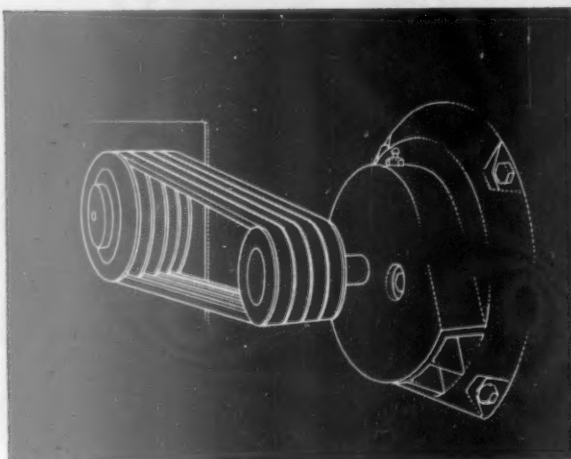
Wholesale Prices: The Wholesale Price Index increased 0.3% to 119.3 last month, reports the Bureau of Labor Statistics. Average prices for almost all major commodity groups advanced.

Higher prices for some nonferrous metals and their products contributed substantially to the uptrend. Another contributor to the advance for all commodities other than farm products and food was the rise in iron and steel scrap.

The increase for machinery and motive products was largely due to power cranes and shovels, road surfacing machinery, and crawler tractors. Prices of concrete ingredients, concrete products, and structural clay products also rose during the month.



BEFORE: This drawing of the former 4-belt drive on a clothes pressing unit is in the same scale as the photo of new Super HC V-Belt Drive at right. Heavy sheaves needed for 4 belts imposed high bearing loads.



AFTER: By redesigning the drive for Gates Super HC V-Belts only 3 belts are required and this Utah manufacturer saves 16 pounds in weight and 24% on the drive cost of every pressing unit it makes.



Manufacturer of pressing equipment cuts cost of drives 24%

New high capacity V-belt also saves weight and space!

This manufacturer is just one of many who have already turned to Gates Super HC V-Belts to achieve far more compact, lighter weight, lower cost V-belt drives for all types of machines. With new Super HC

V-Belts, sheave dimensions can be reduced 30% to 50%, overall space up to 50%, and drive weight by 20% and more.

A product of Specialized Research in the world's largest V-belt laboratories at Gates, the Super HC V-Belt Drive is already standard equipment on production models in virtually every industry.

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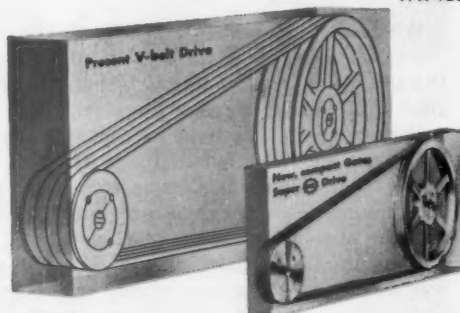
Whatever your plant's power transmission design problem, wherever you are, your nearby Gates Distributor or Field Representative is ready

to assist you to cut space, weight, and costs with Super HC. Ask him for a copy of "The Modern Way to Design Multiple V-Belt Drives."

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TPA 463

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For More Information Write No. 164 on Inquiry Card—Page 32

Sales, Inventories, Orders

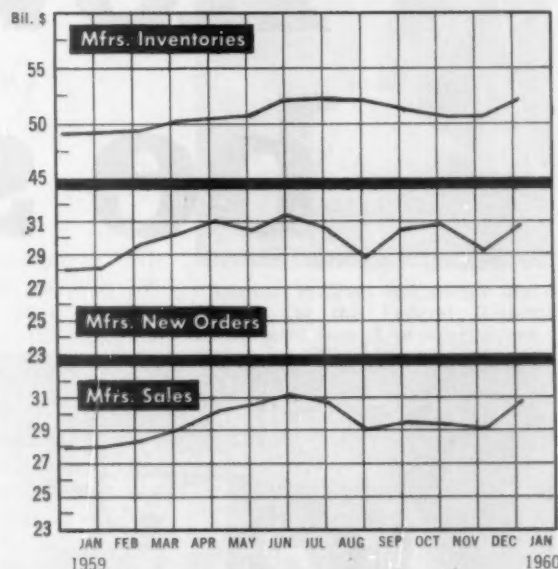
● Durable Inventories Advance \$700 Million

WITH purchasing agents rebuilding their steel stocks following the 116-day strike, manufacturers' inventories rose considerably in December. Sales and new orders also advanced.

Inventories shot up \$700 million to a seasonally-adjusted \$52.3 billion, marking the largest monthly increase of 1959. While nondurable stocks remained steady, the full impact of the rise was felt in the durables area.

Sales increased \$1.8 billion to \$30.8 billion. This upturn came chiefly in primary metals and automobiles as these industries recovered from the strike.

New orders were \$30.9 billion—up \$1.7 billion from the month before. Here too, the spurt was due largely to better business in the steel and auto industries.



Manufacturers' Sales Seasonally Adjusted (Millions of Dollars)

All Manufacturing Industries.....	1958	1959
Durable-goods industries.....	28,135	29,268
Primary metal.....	13,613	14,008
Fabricated metal.....	2,256	1,227
Machinery.....	1,586	1,703
Transportation equipment.....	3,975	4,651
Lumber and furniture.....	3,184	3,577
Stone, clay, and glass.....	884	991
Nondurable-goods industries.....	655	751
Food and beverage.....	14,522	15,260
Tobacco.....	4,481	4,511
Textile.....	414	395
Paper.....	1,079	1,250
Chemical.....	1,207	1,222
Petroleum and coal.....	955	1,029
Rubber.....	2,004	2,157
	2,970	3,301
	518	492

Manufacturers' Inventories Seasonally Adjusted (Millions of Dollars)

All manufacturing industries.....	1958	1959
Durable-goods industries.....	49,209	52,116
Primary metal.....	27,863	30,145
Fabricated metal.....	4,100	3,980
Machinery.....	2,927	3,328
Transportation equipment.....	8,914	9,826
Lumber and furniture.....	6,574	7,333
Stone, clay, and glass.....	1,740	1,841
Nondurable goods industries.....	1,200	1,261
Food and beverage.....	21,346	21,971
Tobacco.....	4,646	4,833
Textile.....	1,904	1,866
Paper.....	2,469	2,495
Chemical.....	1,443	1,473
Petroleum and coal.....	3,748	3,907
Rubber.....	3,264	3,332
	994	1,113

Manufacturers' New Orders Seasonally Adjusted (Millions of Dollars)

All manufacturing industries.....	1958	1959
Durable-goods industries.....	28,365	29,016
Nondurable-goods industries.....	13,673	13,974
	14,692	15,042

1958	1959				
Dec.	Aug.	Sept.	Oct.	Nov. (r)	Dec. (p)
28,135	29,268	29,818	29,350	29,199	30,814
13,613	14,008	14,113	13,949	13,539	14,992
2,256	1,227	1,212	1,189	1,956	2,815
1,586	1,703	1,759	1,670	1,637	1,751
3,975	4,651	4,663	4,620	4,750	4,699
3,184	3,577	3,641	3,730	3,499	2,970
884	991	977	936	930	906
655	751	718	695	662	707
14,522	15,260	15,705	15,401	15,660	15,822
4,481	4,511	4,618	4,578	4,718	4,687
414	395	408	398	439	431
1,079	1,250	1,222	1,201	1,214	1,267
955	1,011	1,029	1,005	1,012	1,049
2,004	2,157	2,273	2,208	2,248	2,371
2,970	3,071	3,301	3,138	3,234	3,148
518	492	544	582	476	508
49,209	52,116	51,892	51,419	51,530	52,316
27,863	30,145	29,817	29,221	29,332	30,000
4,100	3,980	3,923	3,873	3,953	4,114
2,927	3,328	3,117	2,912	2,890	3,105
8,914	9,826	9,741	9,807	9,693	9,848
6,574	7,333	7,305	6,830	6,931	7,135
1,740	1,841	1,860	1,858	1,864	1,854
1,200	1,261	1,277	1,323	1,348	1,359
21,346	21,971	22,075	22,198	22,198	22,316
4,646	4,833	4,832	4,780	4,791	4,775
1,904	1,866	1,930	1,933	1,972	1,972
2,469	2,495	2,516	2,572	2,500	2,490
1,443	1,473	1,471	1,480	1,405	1,500
3,748	3,907	3,970	4,008	4,056	4,049
3,264	3,332	3,267	3,261	3,275	3,306
994	1,113	1,114	1,119	1,116	1,124
28,365	29,016	30,552	30,367	29,549	30,890
13,673	13,974	14,747	14,908	13,907	14,886
14,692	15,042	15,707	15,314	15,642	16,004

(r) Revised.

(p) Preliminary.

How to be sure



An Island Creek technician uses the optical pyrometer to determine ash fusion point of a coal

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For More Information Write No. 165 on Inquiry Card—Page 32

Washington Report

FRB to Continue Tight Money Policy in 1960

WHILE BORROWERS generally continue to complain of "tight" money, William McChesney Martin, Jr., chairman of the Board of Governors of the Federal Reserve System, makes it quite clear that no change in government policy on money and credit is likely.

The Federal Reserve thinking on what constitutes a proper level of interest rates is for borrowers to pay a sufficient rate of return to induce lenders to make loans. Martin takes the position that government monetary policy:

- (1) Cannot effectively peg interest rates
- (2) Cannot prevent monopoly
- (3) Cannot be relied on to cover federal deficits
- (4) And cannot by itself assure either stability or growth.

What monetary policy can do, in Martin's opinion, is foster confidence in the dollar. This will encourage people to save and invest with reasonable assurance that their planning will not be upset by changes in money value.

Interest Rates High

Under this interpretation, it is clear that if the general level of prosperity continues this year, interest rates on loans will continue at a high level. Availability of money may ease, but the Federal Reserve System view is that there will be plenty of takers for all available loans.

Chairman Martin strongly supports the need for a "healthy budget surplus", at least as large as the \$4.2 billion outlined in the President's Budget Message. He reasons that the deficit in fiscal 1959 of over \$12 billions which fol-

lowed the brief recession in 1957-58 must be at least partially offset in the high level economy years of 1959-60—otherwise the national debt will be constantly increased.

The Federal Reserve Board position is not that price stability is more important than high level employment or maximum growth of the economy, but that these objectives cannot be met without price stability.

● Administration Backs Lead, Zinc, Oil Quotas

The Administration has swung its weight behind continuation of the quota system as a means of protecting domestic production of lead, zinc, and oil.

High-cost domestic mine operators have been pressing for an increase in tariffs so they can get their marginal properties back into production. The U.S. Tariff Commission is due to make a report on the issue of higher tariff versus quotas on April 1, and presumably this report would guide the White House on policy.

Without waiting for the Tariff Commission report, Secretary of Interior Fred Seaton recommends that the quota system be continued on lead and zinc at least beyond 1960. Federal quotas for the import of oil, he says, should be continued "for the foreseeable future."

For the purchasing agent, the advantage of quotas over higher tariffs is this: an increase in tariff has the immediate effect of boosting prices of both imports and domestic ores, while the use of quotas has as its overall purpose



Chairman William McChesney Martin, Jr., of the Federal Reserve Board says that if prosperity continues in 1960, interest rates will remain high.

the balancing of supply with demand and lessening the possibility of depressed prices.

Secretary Seaton has committed the Administration to the continuation of the quota system, which means that this choice is likely to prevail, even though there will continue to be strong support for higher tariffs from Congressmen representing mining States.

● Seek Gov't Licensing Of 'Giant' Business

Federal licensing of "giant" enterprises is recommended in a study of anti-trust policy prepared by the Congressional Joint Economic Committee. The study is one of a series covering the areas of employment, national growth, and price trends.

In reviewing anti-trust policy, the study concludes that admonitions, injunctions, cease and desist orders, and fines are only a fraction as effective as suspending license to do business. In line with this approach, the Congressional study suggests that operators should be given a limited grant of powers to do business. To retain these powers, the large enterprises would have to observe minimum regulations as specified in their federal charter or supplementary license. (Turn Page)

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Washington Report

The Congressional study group claims that some such measure was first recommended by the Commission on Industrial Inquiry in 1902, then by Presidents Theodore Roosevelt, Taft and Wilson, and finally by the Temporary National Economic Committee (TNEC). The study notes that a licensing approach is fundamental if anti-trust policy is to make a larger positive contribution to economic growth, high level employment, and stable price levels.

Point of No Return

In reaching the conclusion that licensing is needed to police national anti-trust policy, the study group takes the position that "giant enterprise, the most spectacular product of modern scientific, technological, transportation, metallurgical, chemical, electrical, corporate and managerial revolutions has grown irrevocably beyond the point of no return." All the current curbs and remedies to monopoly are inadequate, the Congressional study concludes—but at the same time, "both atomization and surrender are impractical."

What the study suggests is that Congress strengthen the hand of the federal government by new legislation that would give it power to license companies which are deemed to be in a monopoly position. Failure to abide by government regulation would then be punishable by suspension of license to do business.

• Defense Dept. Eases 'No Overtime' Ban

Purchasing policy-makers of the Department of Defense have instructed contracting officers in the field to maintain considerable latitude in enforcing the "no overtime" policy in government contracts.

Since mid-1957, military buyers have been under orders to eliminate overtime in contracting for military hardware. This ban originally excepted ballistic missiles,

which have been continually on a top priority basis.

Now other military contracts are allowed overtime if the Secretary of the Air Force, Navy or Army (or their designees) authorized it for a specific contract. This authorization, according to DOD purchasing policy-makers, can be arranged in a matter of minutes. Military contractors and suppliers—who can show that it is cheaper for them to work overtime on a production run than to restrict themselves to a standard workweek—can decide on their own to work their plants the extra hours.

The general policy DOD is trying to get across is that the policy banning overtime is mostly aimed at "extended overtime" payments. There is no intention here of trying to inject rigid rules into the military chain of supply.

Freedom of Decision

Defense officials point out that in the past there has been a trend among contracting officers in the field to restrict the amount of overtime that could be worked on a specific contract, even though overtime had been approved at the Secretarial level. More recently, an instruction went out to give the contractor freedom of decision, subject to review every three to six months. Under Department of Defense practice, when a contractor is allowed to work overtime, this leeway in purchase can be extended to subcontractors and suppliers as needed.

The practice of the National Aeronautics and Space Administration differs from Defense policy. On space contracts, two major ones have been excepted from the ban against overtime.

On Project Mercury (the man in space project) the prime contractor has been authorized to go on a 54-hour week. This was done by amending the prime cost-plus-fixed-fee contract.

On the Saturn Project, work on the large rocket engine has been allowed to go up to 20% over-

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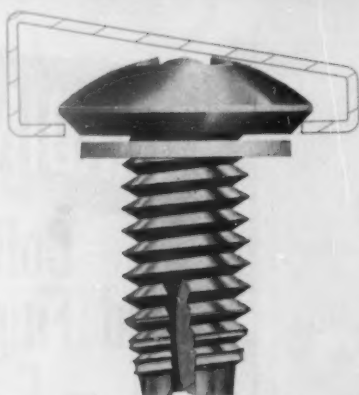


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LOOK TO SHAKEPROOF - THE LEADER IN FASTENING

Washington Report

time. Here too, on projects where the prime contractor is given permission to work overtime, sub-contractors and vendors can be given the same permission.

● Outlook Slim for More Trade With Russia

Prospects of trade with Soviet Russia are heavily discounted by top Administration officials. As an aftermath of Premier Khrushchev's visit in this country, there had been speculation that the volume of trade between the U.S. and the USSR would increase.

One of the blocks to more trade is the Soviet Lend-Lease debt. Intensive negotiation was started some months back to find a basis for settlement. This effort has petered out.

General Deterioration

In the last several months, there has been a general deterioration of the spirit of friendliness. On the political front, the Soviets are again making moves to create problems—for example, the statements by Soviet Trade Premier Mikoyan in Cuba. Also, many feel that the Soviet position on the division of Germany into two states—with a major change in the status of West Berlin—has hardened.

If a close friendship prevailed between the U.S. and the U.S.S.R., special efforts would probably be made to find a basis of exchange of products. But with constant friction between the two countries, the Federal government is more likely to buy from friendly nations rather than from countries behind the Iron Curtain.

The Administration feels that trade with pre-Soviet Russia was meager, and that in recent years, the products which were once imported from Russia have been replaced by imports from close allies. An example of this switch is that Canada is now a major supplier of furs, whereas furs once were Russia's chief export to this country.—A. N. Weckler

For More Information about ad on facing
←page Write No. 168 on Inquiry Card—Pg. 32
FEBRUARY 29, 1960

Life in these excited states...

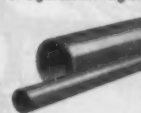


Corrosion is full of surprises

Out-guessing corrosion has been our business for 100 years. We now make 8 types of chemical resistant pipe... with valves, pumps, and tanks to match... and pretty well know what to expect with them. If anything, our advice is on the safe side. Please consult us with any problem.

All-purpose rigid PVC. Sched. 40, 80 & 120, 1/2 to 4". Threaded or socket-weld fittings. Valves 1/2 to 2". NSF-approved. Bul. CE-56.

RIVICLOR for ageless strength



Improved design... now 12 gpm. All wetted parts acid-resistant, wear-resistant Ace hard rubber. Finest available. Bul. CE-55.

NEW ACE Gear Pump



Flexible poly pipe, ideal for water lines, drains, underground pipe or conduit. Sizes 1/2 to 2", long coils, NSF-approved for drinking water. Bul. CE-57.

SUPPLEX tops in economy



World's best chemical valves... at moderate prices. All-plastic, rubber-lined, or all-hard-rubber. 1/2" pet cocks to 24" gate valves.

VALVE HEADQUARTERS



ACE

processing equipment of rubber and plastics

AMERICAN HARD RUBBER COMPANY

DIVISION OF AMERACE CORPORATION

Ace Road • Butler, New Jersey

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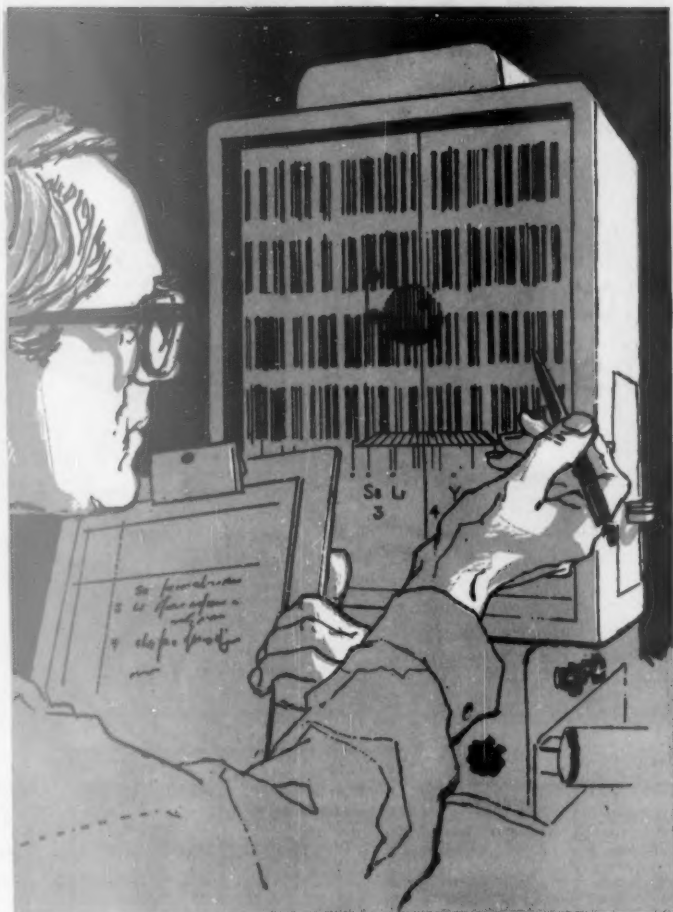
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in
cee
Catalog!

For More Information Write No. 169 on Inquiry Card—Page 32



Purity-control of National Lock Company die castings

is measured to the third decimal...



The Spectrograph accurately measures all metals in the zinc alloy and is the basis for controlling the alloy within the limits established by the American Society for Testing Materials.

Excessive amounts of impurities in zinc die castings effect intergranular corrosion which, in turn, causes weak, brittle castings.

Here, within National Lock Company's complete die-casting department, purity-control of our zinc alloy die castings is a matter of sound technical knowledge, constant vigilance and the finest equipment and facilities metallurgical science can provide.

Our spectrograph accurately analyzes all metals in the alloy . . . to the third decimal. Our X-Ray machines check the soundness of the castings "all the way through." Humidity and salt spray cabinets, electronic, magnetic and chemical instruments are other pieces of precision equipment found in National Lock's chemical and metallurgical laboratories.

Die casting machines for both conventional and vacuum processes, automatic plating equipment, automatic painting and lacquering machines help make National Lock zinc alloy high-pressure die castings superior in every way.

Our experienced, highly skilled engineering and production personnel will help you with your design and production problems.

High-quality finished
zinc die castings
since 1933.



NATIONAL LOCK COMPANY
ROCKFORD, ILLINOIS

CABINET HARDWARE • LOCKS AND LOCKSETS • BUILDERS HARDWARE • FASTENERS • REFRIGERATOR HARDWARE • RANGE HARDWARE • PLASTICS

For More Information Write No. 170 on Inquiry Card—Page 32

Purchasing Follow-up

See Second Quarter Sales, Profit Gain

Seventy percent of the businessmen surveyed by Dun & Bradstreet expect year-to-year gains in their second quarter sales.

Slightly over 25% of those polled anticipate no change and the remainder believe sales will be down. These expectations are a little more optimistic than they were in a similar poll three months ago — when there were many uncertainties about the outcome of the steel dispute.

In the current survey, the most optimistic were manufacturers of nondurable goods. Wholesalers were the least hopeful.

Although the profit outlook is not as cheerful as sales, it is nevertheless better than three months ago. Of those interviewed, 53% foresee higher profit levels, compared with 51% in the previous quarter.

Considerable advances are expected in new orders. In the durables area, 67% expect gains, compared with 59% in last quarter's survey. In nondurables, 60% anticipate increases—a slight gain over the previous poll's 57%.

A healthy 63% expect inventory levels to be the same as a year earlier. The highest percentage anticipating inventory rises was among manufacturers of durables.

On the employment outlook 27% of the durables manufacturers expect to add to their payrolls next quarter. Among wholesalers only 8% plan to increase employment in April, May and June.

Stop Cyclical Buying, Utility P.A.'s Urged

Purchasing agents for electric utility companies can save more than a half-billion dollars in the next ten years by changing their present cyclical buying habits, said a General Electric Company vice president.

Speaking at the annual meeting of the Public Utility Buyers in Atlanta, William S. Ginn, vice president and general manager of GE's turbine division, noted that this saving "represents only a fraction of the total savings that would result from a stable production pattern." He urged P.A.'s to buy new generating equipment on the basis of historical growth trends in the electrical industry—adding capacity perhaps sooner than needed but avoiding the sharp peaks and valleys.

"Production costs," he told the P.A.'s "tend to run over 10% higher under cyclical conditions than they would under more stable conditions."

Among the inefficiencies from cyclical buying habits, he noted the following:

- (1) Overexpansion in manufacturers' plant and facilities to meet peak demands for equipment.
- (2) Violent swings in the size of the manufacturers' labor force

with abnormal hiring, training, and discharging expenses.

(3) Increased social benefits demanded and received by labor to meet the uncertainties created by cyclical production.

Mr. Ginn showed the buyers data tending to prove that purchasing new generating equipment in line with the growth trend would bring the utilities the same capacities as with the present method. "The fact that the results under the two methods of buying do not vary by a significant margin argues for the use of the simpler of these two approaches," he said.

Expansion to Continue

The vice president added "it is definitely easier to forecast the trend values than the fluctuation around the trend. Moreover, the fluctuations of actual peak loads around the growth trend line are relatively small, so that the growth trend projection is effective for forecasting future power requirements."

He noted that "there are economic forces at work right now, which should provide strong momentum for the continued expansion of our national economy. Two of the main forces are population expansion and improvements in productivity."

Construction Contracts Reach Record High

Construction contracts hit a new high in 1959 for the thirteenth year in a row.

Pacesetters were housing and industrial and commercial building, reports the F. W. Dodge Corporation. Construction contracts last year in the United States—excluding Alaska and Hawaii—totaled \$36.3 billion, a gain of 3% over 1958.

Contracts for industrial buildings rebounded sharply from the recession lows of 1958, according

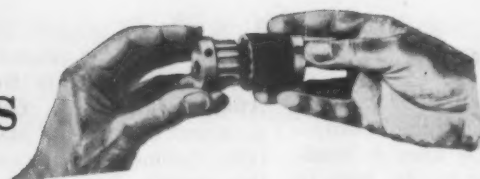


Senator Paul Douglas (D-ILL.), head of the Joint Congressional Economic Committee, is urging that dividends and interest payments be withheld at the source. This move is designed to catch those who evade these payments on their income tax returns.



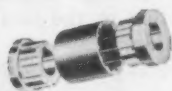
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These couplings



are so

simple in design



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is



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compared with other coup-

plings. Insist



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PowerGrip Flexible Couplings tried

on your machinery and then watch

your costs go down. Installation is

quick and easy. No maintenance, no

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is through your U.S. Rubber Transmission Distributor.



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WORLD'S LARGEST MANUFACTURER OF INDUSTRIAL RUBBER PRODUCTS

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In Canada: Dominion Rubber Company, Ltd.

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Purchasing Follow-up

to Dodge associate economist Edwin W. Magee, Jr. The year-to-year increase was 34%. Prospects are excellent for a continuation of this trend through 1960, he says.

Residential contracts were at record levels and accounted for the bulk of the total construction increase. Apartment buildings in particular, increased substantially. It now accounts for 17% of dwelling units.

Office Building Off

Commercial building contracts were also at high levels, sparked by stores and other mercantile buildings. Office building contracts, however, dropped 4% below the previous year.

Highway contracts declined sharply, falling about \$1 billion below the record 1958 level. This included cutbacks in the Federal Highway Program due to shortages in the Highway Trust Fund.

The first notable drop in the postwar period was registered by educational buildings. This sector declined 8% below the last year's level.

The 1959 gains were wholly accounted for by a sharp upsurge in private construction. Private-ownership projects advanced 16% above 1958, while public projects were down 18%.

Buyers Invited to Gray Iron Castings Clinic

A series of one-day clinics on cost-cutting in designing and purchasing gray iron castings will be held throughout the country.

Purchasing agents are among the executives invited to the clinics which will feature information on:

- (1) How to save in specifying and purchasing.
- (2) Design possibilities with gray and ductile iron.
- (3) Ultimate economies realized by "designing-in" inherent advantages of gray iron.

(4) New services offered by foundrymen.

(5) Recent shortcuts in designing castings.

Case histories of gray iron casting use will be presented at the clinics. Speakers will be Charles Walton, technical director, and Richard Meloy, marketing director of the Gray Iron Founders' Society.

The clinics will be held in seven metalworking centers. First city on the schedule is Berkely, Calif.—where the program is slated for March 28. Other cities are Chicago, Milwaukee, Newark, Toronto, Cleveland, and Cincinnati.

Classes will be limited to 40 participants. The \$25 registration fee includes a copy of the "Gray Iron Castings Handbook." Further information is available from the society at National City-East Sixth Building, Cleveland 14, Ohio.

1959 Steel Shipments Top 69 Million Tons

Shipments of finished steel products from mills last year totaled 69,377,067 tons, according to the American Iron and Steel Institute.

This marks a 16% increase over the 59.9 million tons delivered in 1958. However, the 1959 figure is still 18% lower than 1955—when a record 84.7 million tons were shipped.

The top month for steel shipments last year was June, when purchasing agents were loading up on inventories to beat the steel strike. In that month 9.7 million tons were delivered to the fabricating plants throughout the country.

Of the major steel products sold in 1959, 18.4% of the total was cold-rolled sheets. Hot rolled sheets were next with 11.3%, followed by hot-rolled bars (including light shapes) with 10% of the total.

Other leading products were



Tubing for the Jet Age

An increasing percentage of Wall Tube's highest grade tubing—stainless steel, nickel and nickel alloy—is going to the manufacturers of the most advanced aircraft and missiles. This fact is significant if you procure small diameter tubing of any grade. The reliability of all Wall tubing is assured by the exhaustive testing methods required for critical end uses. May we send you our latest brochure?

RANGE OF MANUFACTURE

STAINLESS STEEL

Welded and Cold Drawn
1 1/4" OD to 3/32" OD
.083" to .008" walls

Seamless

3/4" OD to 3/32" OD
.049" to .008" walls

NICKEL AND NICKEL ALLOYS

Seamless

3/4" OD to 3/32" OD
.049" to .008" walls

WALL TUBE

AND METAL PRODUCTS CO.

NEWPORT, TENN.

For More Information Write No. 172
on Inquiry Card—Page 32



It's V-ring packing of TFE resins and \$345 in savings per year per valve!

A man in the purchasing department of a paper mill found that specifying valve packing of Du Pont TEFLON TFE resins makes a welcome difference in over-all costs. The mill had encountered serious problems in packing valve stems in corrosive white, green and black liquor service. Liquor was being lost; frequent changes of packing and periodic adjustments were required; and cleaning and maintenance costs were high. The mill switched to V-ring packing of TFE resins—and reports savings of \$345 per year per valve through the elimination of frequent changes, adjustments and liquor losses. In addition, the use of packing of TFE resins has sharply reduced wear on valve stems.

The outstanding properties of TFE resins—toughness, virtually complete chemical inertness, resistance to temperature

extremes, low friction without lubrication—have led to their specification as sealing and gasketing materials, even when service demands are not exceptionally rugged. The use of TFE resins permits full standardization . . . provides extra safety, reliability, longer life and fewer maintenance problems.

Conclusion: If you feel that such considerations as these make a difference in *your* operation, it will pay you to find out more about the engineering properties of TEFLON TFE resins in sealing applications. For more information, write to: E. I. du Pont de Nemours & Co. (Inc.), Polychemicals Department T-50229, Room 2526, Nemours Building, Wilmington 98, Delaware.

In Canada: Du Pont of Canada Limited, P.O. Box 660, Montreal, Quebec.



BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

TEFLON
TFE-FLUOROCARBON RESINS

TEFLON is Du Pont's registered trademark for its family of fluorocarbon resins, including TFE (tetrafluoroethylene) resins and FEP (fluorinated ethylene propylene) resins.

For More Information Write No. 173 on Inquiry Card—Page 32

Purchasing Follow-up

plates (8.4%), electrolytic tinplate (7%), and heavy structural shapes (5.9%).

Autos Take 20%

The market receiving the greatest amount of finished steel was the automotive—which took in 20.9% of the total. Warehouses and distributors bought 19.2% and construction—including maintenance—took 12.5%.

Among the other large markets for finished steel were containers (9.3%), machinery, industrial equipment and tools (6.1%), and contractors' products (5.3%).

Finished steel products sold to the automotive industry set a monthly record in December, as automakers rushed to keep up with great consumer demand. The total was 1,795,729 tons—which beat the prior record established in June by nearly 24,000 tons.

NAEB Schedules Annual Study Course

The National Association of Educational Buyers will hold its 12th annual institute on college and university purchasing from February 29 through March 4, 1960. The one-week course will be given at Rickey's Studio Inn Hotel, Palo Alto, Calif.

General subjects in the program include fundamentals of purchasing, organization, quality and price factors, selection and training of personnel, specifications, and legal problems. Special sessions are devoted to subjects of interest to educational buyers: paper and printing, operating a stores department, equipping dormitories, campus planning, food purchasing, and buying educational and laboratory materials.

Those who wish to attend should apply to Mr. Bert C. Ahrens, Executive Secretary, National Association of Educational Buyers, 1461 Franklin Avenue, Garden City, N.Y. Price of the course is \$35 for members of the N.A.E.B., \$50 for non-members.



Here's how **Snap-on** provides specialized hand tool service across the board for industry

Production... Snap-on offers a complete range of wrenches, sockets and specialized tools for product assembly.

Original Equipment... Snap-on makes up custom-built tool kits to be included with new products shipped from the factory.

Maintenance... Snap-on provides maintenance tools for servicing anything from plant facilities and machines to every type of vehicle.

Field Service... Snap-on assembles special field-service tool kits for repairing everything from diesel engines to business machines and appliances.

Plus **Snap-on** Personal Service

Snap-on Sales Engineers work closely with industry to cut costs, keep production on the move. Here are a few examples:

Now revamping one company's entire tool crib setup (year-long project).

Put Snap-on engineer right on electronic assembly line to design special pliers.

Spent weeks on excavator assembly line to provide special tool kit.

Same as above on diesel engine assembly line.

Continually providing special long-life impact sockets on dozens of assembly lines.

Whatever your tool problem, Snap-on can render a specialized service. Branch offices and warehouses are located in key industrial centers throughout the U.S. and Canada. Write us or call your nearby Snap-on representative.

FOR ALL INDUSTRY
SNAP-ON TOOLS
8019-B 28th AVENUE • KENOSHA, WISCONSIN

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Former bearings took a day . . . this bearing replaced in 1 hour and a half!

Here is one of several 4-7/16" shaft size split roller bearing pillow blocks installed on large, high speed fans at the Kaiser Aluminum & Chemical plant in Baton Rouge, Louisiana. Split roller bearings were purchased by Kaiser after thorough study and on the recommendation of our sales engineers! Our recommendation was based on the ability of these bearings to stand up under constant use and because it is split right-down-to-the-shaft, removal is both simple and fast.

Shown above is Maintenance General Foreman, Ivy Ingram,

with the bearing his crew replaced in only one hour and a half. It formerly took many more hours to pull the sheave or coupling, pull the bearing, dress the shaft and install a new bearing. With this new split bearing, they simply removed six cap bolts and went to work.

We are authorized distributors for all the bearings we sell. They come to you in the manufacturers' boxes guaranteed by the maker and our company. Ask for our recommendation on all bearing requirements—There's a branch near you giving fast service 24 hours a day!

*Providing bearing service
in the North*

and

in the South

BEARINGS, INC.

OHIO: Akron • Canton • Cincinnati • Cleveland • Columbus • Dayton • Elyria • Hamilton • Lima • Lockland • Mansfield • Painesville • Toledo • Youngstown
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It's easy and economical to add punch to your packages, color to your cartons with appealing Safetex Printed Tape. For very few extra pennies, your *exclusive* Safetex Printed Tape design can advertise your company or product at a low, low cost . . . discourage pilferage of shipments . . . be helpful in tracing lost shipments . . . make in-warehouse identification easier for your customers . . . be effective in color coding production runs. Appealing Safetex Printed Tape is available in one, two and three color printing. On any of 10 handsomely colored

stocks, in all popular widths and weights. For proof of Safetex Printed Tape quality and popularity, write for sample folder or call your Safetex distributor.

SAFETEX PRINTED TAPE



CENTRAL PAPER COMPANY
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Manufacturers of Safetex superstandard gummed tape, Security standard grade gummed tape, Glasweb, Glasstex and Glasline reinforced tapes, Holiday Christmas wrap and tape, Triad matched bags, wrap and tape, adding machine rolls

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FEBRUARY 29, 1960

For More Information about ad on facing page Write No. 177 on Inquiry Card—pg. 32→

You get MORE THAN A MOTOR with





General Electric's Form G... for example...

The Right Motor... Delivered On Time

A delivery schedule is a promise made—one to be kept. And we're proud of Form G's record on that score. A total of five highly automated manufacturing lines in three separate plants stand ready to make sure you get the exact fhp motors you ordered . . . and get them when you want them.

DELIVERY PERFORMANCE is only one way you get **MORE THAN A MOTOR** when you choose General Electric motors. Other Form G "extras" are reviewed on the next page.

GENERAL  **ELECTRIC**

These unmatched extras make G.E.'s Form G MORE THAN A MOTOR



YEARS-AHEAD DESIGN LEADERSHIP—General Electric's year-in year-out leadership in fractional horsepower motor design and innovation helps meet your changing product demands; helps keep you "out front".



FAST, LOCAL SERVICE—A nationwide network of Electric Motor Service Stations, kept up-to-date on latest motor techniques by twenty traveling motor specialists, assures fast, local motor repair or replacement.



DESIGN VERSATILITY—Form G fhp motors offer amazing versatility and design freedom for incorporation into your product. Whatever your product requirements, there's a Form G fhp motor to meet them.



QUALITY CONTROL—"Individualized" quality control assures consistently high quality. *Every* Form G motor is thoroughly tested at all stages of production for top performance and long-life characteristics.



EASE OF ASSEMBLY—Compact G-E Form G fractional horsepower motors can be mounted and hooked up in a matter of seconds; offer assembly-line savings in time and money; cost less to ship or handle.



EXPERT APPLICATION AID—General Electric application engineers, experts on the Form G fhp motor and the various ways of applying it, are always on hand to help you solve your unusual motor applications.

Make sure you get MORE THAN A MOTOR . . . choose General Electric Form G fhp motors, available in NEMA 48 and 56 frames. For more information contact your nearby General Electric Apparatus Sales Office or write General Electric Co., Section 702-109, Schenectady 5, N. Y.

GENERAL  ELECTRIC

Veeder-Root READOUT Bulletin

One of a Series

Predetermining Counters provide simplified methods for Automatic Control

Veeder-Root Predetermining Counters now make it possible to design and build automatic control into equipment of all types. They are available for mechanical, electrical and electronic control and offer many features and options to give your equipment extra value and versatility.

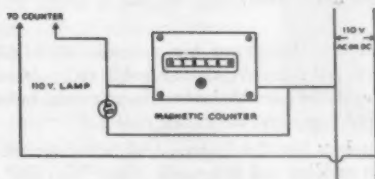
Predetermining Mechanical Counters can be applied to rotary, eccentric or stroke type motion, registering or counting whatever units are required — such as revolutions, motions, turns, pieces, lengths, and strokes. The newer electric and electronic Predetermining Counters use a special high speed light source and photo cell for non-contact counting on any machine or process.

Automatic control is provided by the predetermining counter actuating such devices as: lights, bells, signals and stop motions. They work at speeds up to 8000 counts per minute, can be easily incorporated into machine design and control panels. Application assistance is available from a Veeder-Root Counting Engineer; and specialized designs and modifications can be supplied in most cases. For complete information, call or write your nearest Veeder-Root office.

High Speed, Quick Reset Predetermining Counters for electrical and mechanical control, at speeds to 8000 cpm.



This counter has one set of wheels which are preset to any figure within the capacity of the counter by depressing the reset lever, raising the cover, and turning. The counter subtracts from the preset number to "00000", when a knock-off lever actuates an electrical switch. To reset, just press the reset lever, and counter returns instantly to preset figure. For Mechanical Control, counter actuates a mechanical lever instead of electrical switch. Speeds: 6000 rpm or 8000 counts per minute.



Addition of Magnetic Counter Provides Record of Total Lots.

A Veeder-Root Magnetic Counter connected in series with the alarm or stop motion registers one unit for each of the predetermined lots produced. Provides a simple means to obtain both machine control and production control.



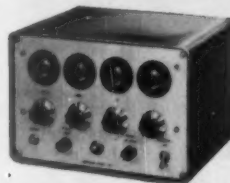
The High Speed Predetermining Counter is the basic counter in this complete line. It provides automatic control by this simplified method: ... to set a run of 5461 pieces on the counter: (1) Set all white wheels to zero with one turn of wing-nut; (2) Now, set the metal wheels, one by one. Set first wheel to "5", opposite zero on its "opposite number" white wheel, then set the "4", "5" and "1" and that's all ... you're ready to throw the switch and start the run.

Electric Predetermining Counter Ideal for Batching, Length Measurement and Materials Handling.

This new counter offers automatic reset plus other important features: 1. Instant automatic reset ... Control contacts operate and hold for 0.3 seconds ... or for 2 seconds ... or indefinitely. 2. Counter can be modified for automatic sequential predetermining, using two or more preset numbers. 3. A batch or totalizing counter can be added. This counter is adaptable to material handling applications, slow speed batch counting, length measurement, slitting, and similar applications. Speeds up to 1000 cpm.



High Speed Electronic Predetermining Counters Feature Automatic Reset, 5000 cps.



The No. 1604 features instantaneous recycling. Up to six decade counters, with one, two, or more sets of preset numbers ... with or without photohead or enclosure. Output relay provides momentary or indefinite holding time. Batch totalizing available. Ideal for all high speed counting, up to 5000 cps, recycle at 1000 cps.

Send for Literature and Technical Data ... Extensive information and specifications on how to use Veeder-Root Predetermining Counters are yours for the asking. Send today.

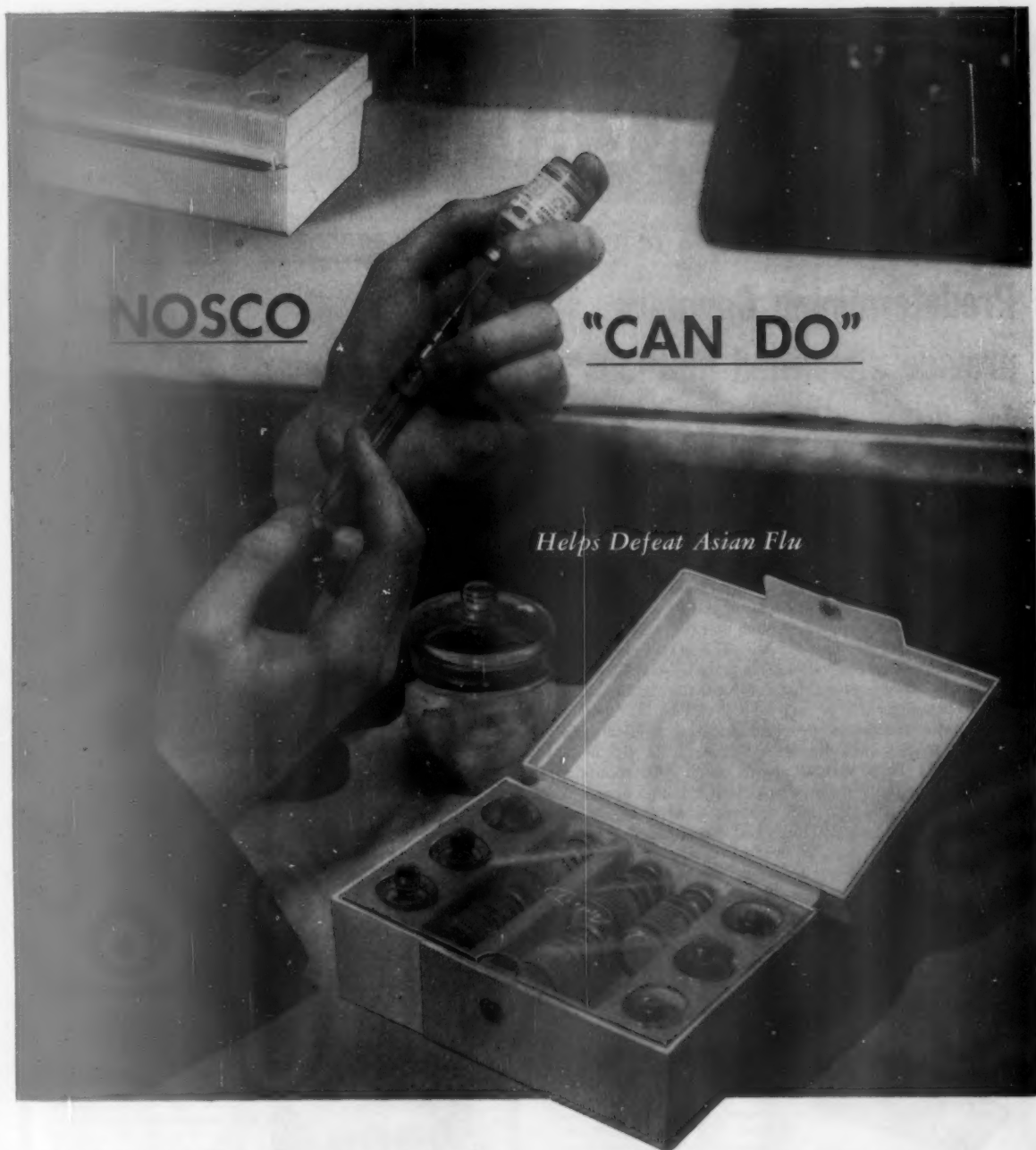
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NOSCO

"CAN DO"

Helps Defeat Asian Flu

Yes, Nosco's famous "Can Do" ingenuity is contributing to a healthier America. Where doctors are fighting Asian Flu, you'll find this custom-molded Nosco Biological Kit by their side.

Lederle Laboratories wanted to make their precious flu vaccine easier for doctors to preserve and transport. They came to Nosco with their special requirements for a multi-vial carrying case. The container had to demonstrate striking clinical cleanliness and easy washability. Great shock resistance and chemical inertness were also necessary. And cost was important.

Nosco said "Can Do" and began transforming customer specifications into practical design. From flexible polyethylene they molded the container with an integral hinge for connecting the base and cover. A white expandable styrene liner was assembled

into the base to give additional shock and thermal insulation. Further protection is provided for the vials by the clear acrylic panel, which hinges freely with the case by means of integral pivot lugs.

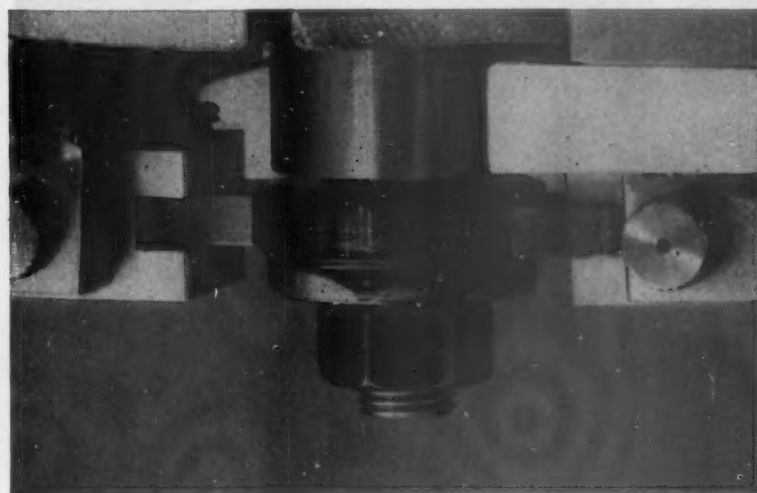
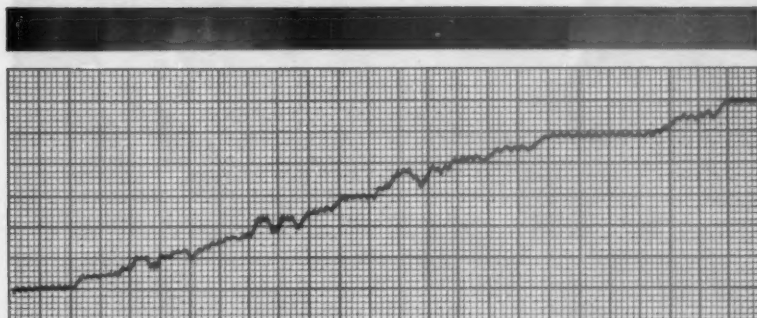
Nosco's finishing department hot stamped "BIOLOGICALS" into the cover and crimped male and female eyelet elements into the case. Finally, the assembled composite units were individually plastic-bagged to preserve the clinical quality.

Complex projects like this biological kit are routine at Nosco. In injection molding and decorating, Nosco "Can Do" is time tested. Let us show you how these skills can produce your plastic parts in volume and at reasonable costs. For more information, just write or call.

NOSCO plastics, inc. • erie 1, pa. *One of the world's great injection molders.*

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WE TAKE THE PULSE OF BEARINGS ON TAPE TO MAKE THEM EVEN BETTER!



TO TAPE-RECORD THE "HEARTBEAT" OF BEARING METALS UNDER LOAD, WE USE THIS SPECIAL FRICTION AND WEAR TESTER. (left) The result is highly accurate data on the behavior of bearing-metal surfaces. invaluable in our fundamental research into friction. By means of this instrument, we're able to correlate, more closely than ever before, specific alloy compositions with their degree of the "stick-slip" phenomenon (in which one surface sliding over another slides . . . stops . . . slides . . . stops . . . and so on) which accompanies unlubricated sliding action. We can also determine accurately the compatibility of bearing materials with shaft metals in lubricated systems . . . showing us which metal or alloy is most likely to be superior for a given bearing application. In short, this Friction Tester is a fundamental research tool which gives us positive answers to difficult bearing problems, faster than ever before.

ONE REASON WHY F-M SLEEVE BEARINGS

and other F-M products give you the finest possible performance — this and the other unusual precision equipment used by Federal-Mogul research. You'll find F-M sleeve bearings used in turbines, engines, and countless other types of power transmission equipment . . . F-M precision thrust washers in pumps, automotive engines and transmissions, motors . . . F-M formed bushings in refrigeration compressors, electric motors . . . and low-cost F-M spacers in motor mounts, machinery, control mechanisms. These are just a few examples.



There's much valuable data in our Design Guides on sleeve bearings, thrust washers, and bushings; and in our brochure on spacers. For your copies, write Federal-Mogul Division, Federal-Mogul-Bower Bearings, Inc., 11077 Shoemaker, Detroit 13, Michigan.

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thrust washers

DIVISION OF
FEDERAL-MOGUL-BOWER
BEARINGS, INC.

WHATEVER
MATERIAL
ADVANTAGES
YOU NEED...



an insulation
to isolation...

YOU'LL FIND THEM

IN **A** FELTS!

Versatile A+ FELTS... crafted to meet the designer's demands... quickly available to solve a production need... serve such varied purposes as muffling the roar of a jet... or cushioning the vibration and shock of a punch press, as our **VIBRA-MOUNT®** felt does.

They can be made amazingly resilient—or hide-like and tough. They offer thousands of job-tested answers to difficult problems, carefully researched through more than half a century of experience with felt. Whether your problem is in the field of absorption, sealing, insulating, cushioning, polishing, or special fashion effects, American Felt Company's proven materials ability can help you meet it.

To find a better way to do the job, consider A+ felts. State your problem; our engineers will follow through promptly. Write: Engineering Dept., American Felt Company, 902 Glenville Road, Glenville, Conn.

Among our famous trademarks: "**K**" **FELT**—sound absorbing and thermal insulation; **VIBRA-MOUNT**—vibration isolators; **HUSHALON**—decorative wall covering.

American Felt
Company



For More Information Write No. 181 on Inquiry Card—Page 32

AT BCA *everything's new but the name*



RARE SAND PROVES BEARING DESIGN in new 100,000-mile test!

The automotive shaft bearing above has just completed the equivalent of 100,000 miles of dusty backroads travel. For hours, it's been alternately spun and stopped in this special mud . . . mud composed principally of a rare type of Arizona sand, so fine it penetrates almost anywhere water can go.

The particles of this unique sand are so small that, mixed with water, even filtering won't remove them all. They're highly abrasive, too—so much so that bearing failure quickly occurs whenever particles penetrate into a bearing raceway. Though several score of spin-and-rest cycles in this bath are equal to 100,000 miles of heavy-duty use on the road, the BCA bearings tested on this machine consistently stand up under many more cycles, before failure from sand penetration.

This test is typical of the many being conducted in BCA's new testing laboratories for BCA customers. Here, and in the expanded research laboratories, testing of bearings to exceed customer specifications is a daily occurrence. Often test equipment is specially built to exactly duplicate equipment in the customer's plant.

BCA provides a wide range of ball bearing sizes and types for nearly every kind of industry. This, plus extensive new research, testing, and precision production facilities make BCA a dependable source of long-life bearings. For information, write Bearings Company of America, Division of Federal-Mogul-Bower Bearings, Inc., Lancaster, Pennsylvania.



**BEARINGS COMPANY
OF AMERICA**

ball
bearings

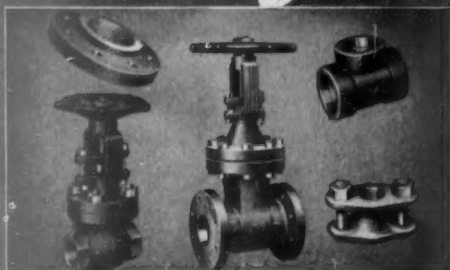
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For More Information Write No. 182 on Inquiry Card—Page 32

Vogt

PRODUCTS

Designed for today's
Tough
service demands



FORGED STEEL VALVES & FITTINGS FOR TOUGHNESS AND TROUBLE-FREE SERVICE

Forged from carbon and alloy steels, Vogt valves, fittings, flanges and unions are built to safely handle liquids and gases at high pressures and temperatures in the modern petroleum refinery and petro-chemical plants. The complete line includes flanged, screwed and socket weld end globe, gate and check valves—ells, tees and crosses—couplings—bushings—plugs—unions—flanges and flange unions—and weld caps.



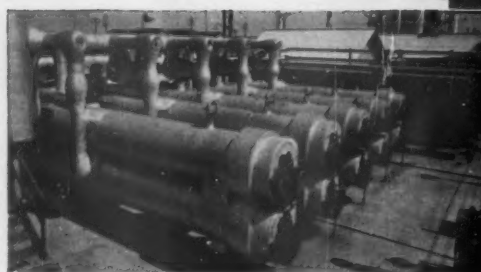
MORE REFRIGERATION TONNAGE AT LESS COST

More than 70 years of engineering and manufacturing experience is incorporated in Vogt refrigerating and ice making equipment. Compression Systems and Tube-Ice Machines in a wide range of capacities serve industrial and processing plants and institutions here and abroad.



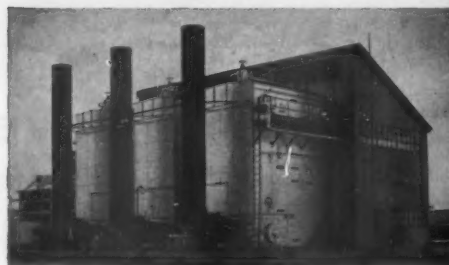
SPECIAL MATERIALS COMBAT CORROSION AND PRODUCT CONTAMINATION

Our modern shops produce a wide variety of equipment from special metals and alloys to fight corrosion and product discoloration or contamination. Fabrication procedures insure that corrosion resistant properties of welds will match that of the materials used to construct the equipment.



PROCESS EQUIPMENT FOR EVERY SERVICE

Vogt constructs process equipment in wide variety to all Codes. Stills and towers, oil chillers, crystallizers, heat exchangers, molding machines, etc., serve in the manufacture of oils, greases, 100 octane gasoline, synthetic rubber, chemicals and related products around the world.



HIGH EFFICIENCY STEAM GENERATORS

Vogt steam generators are designed to give maximum rating in a minimum of space, with high efficiency and low maintenance expense. Bent tube and straight tube designs are available for solid, liquid or gaseous fuels to meet every power, process or heating requirement.



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PRODUCTS FOR REFINERIES, CHEMICAL PLANTS, POWER PLANTS AND PROCESS INDUSTRIES
Write for literature, Dept. 24A-GPM

For More Information Write No. 183 on Inquiry Card—Page 32



STAMINA... heavy loads go farther on Bower Bearings

Moving a missile from coast to coast takes bearing muscle aplenty. And its on-schedule arrival depends on perfect—repeat, *perfect*—bearing performance.

To roll the load surely, safely, on time you can depend on Bower bearings. The extra assurance, extra service they give results from definite design advantages. Spherically generated roll heads, higher flanges and larger two-

zone contacts translate into trouble-free service, reduced maintenance, longer bearing life.

Whether you build, buy or maintain trucking equipment—or *any* product that uses roller bearings—ask for Bower first. You can select from a complete line of tapered, straight and journal roller bearings for every field of transportation and industry.



BOWER ROLLER BEARINGS

Bower Roller Bearing Division • Federal-Mogul-Bower Bearings, Inc. • Detroit 14, Michigan

For More Information Write No. 184 on Inquiry Card—Page 32

Information For Your Catalog Files

AIR COMPRESSORS

A four-page folder on stationary air compressors. Contains data on rotary screw-type machines which deliver up to 19,400 cfm at 100 psi.

Atlas Copco

Write No. 1 on Inquiry Card—Page 32

BORING MACHINES

Bulletin 315925 describes two small precision boring machines—a single-end and a double-end model. Illustrates various spindle setups and items of equipment that add to productivity and versatility. Includes a floor plan and complete specifications.

Ex-Cell-O Corporation

Write No. 2 on Inquiry Card—Page 32

CABLE CONNECTORS

Bulletin W-32 describes welding cable connectors with a patented locking action. The design is pictured and replacement parts are listed. Covers two sizes—for 1/0-2/0 cable and for 3/0-4/0 cable.

Ampco Metal, Inc.

Write No. 3 on Inquiry Card—Page 32

CONTROL PANELS

Bulletin G-9 gives information on control panels for a variety of automatic materials handling systems. The color catalog presents four basic types—the master control panel and the floor, wall-mounted, and explosion-proof types. Illustrates and describes applications and contains a chart of standard symbols.

Fuller Co.

Write No. 4 on Inquiry Card—Page 32

CONTROLS

Bulletin J-105 presents information on positioning and program controls. Includes information on linear and rotary actuators and six basic types of remote positioners.

Jordan Controls, Inc.

Write No. 5 on Inquiry Card—Page 32

HOISTS

A four-page illustrated brochure on hoists and hoist cranes. Includes a table, installation photographs, and specifying information.

Northern Engineering Works

Write No. 6 on Inquiry Card—Page 32

HOUSINGS

Bulletin No. 160 covers cast-aluminum housing for explosion-proof and weather-proof applications. Presents detailed drawings, photographs, and dimension charts.

Adalet Manufacturing Company

Write No. 7 on Inquiry Card—Page 32

INDUSTRIAL CASTERS

Form No. 8159 describes industrial casters. The four-page folder includes illustrations, descriptions, and specifications of 24 different series of swivel-plate and rigid-plate truck casters. Also covers eight types of wheels available.

Faultless Caster Corp.

Write No. 8 on Inquiry Card—Page 32

INDUSTRIAL LAMINATES

Catalog L-CDL-494 covers industrial laminated plastic sheets, tubes, and rods. The 16-page bulletin lists applications, special features, detailed characteristics, and sizes available in over 50 grades.

General Electric Company

Write No. 9 on Inquiry Card—Page 32

MINIATURE RELAYS

Bulletin BR-593 describes miniature relays operated by 5 mw of power. Covers a variety of mounting and header configurations.

Babcock Relays, Inc.

Write No. 10 on Inquiry Card—Page 32

NUMERICALLY CONTROLLED MACHINE TOOLS

A 20-page Guide Book on numerically controlled machine tools. Contains basic information and approximate costs of getting into tape controlled operations. Includes four sections—fundamentals, how the different types operate, what Numerical Control is, and questions and answers.

Ex-Cell-O Corporation

Write No. 11 on Inquiry Card—Page 32

PIPE

Bulletin 989 describes field cut Glasteel (glass inside, steel outside) pipe. Illustrates four steps to install the pipe; cut pipe to length, thread, fire-polish pipe to obtain a smooth surface, and finish end with belt sander to get flat gasket-seat.

Pfandler Permutit Inc.

Write No. 12 on Inquiry Card—Page 32

250,000 Power Tools per year with Cities Service Pacemaker T

Porter-Cable, one of the world's largest manufacturers of portable wood-working tools, has long known the value of quality in a lubricant as well as in a power tool. Each piece of equipment made by Porter-Cable is carefully pre-tested before manufacture and then continually tested for years after its original appearance on the market. It is this kind of thoroughness that led to Porter-Cable's choice of Cities Service Pacemaker 300 T as the hydraulic oil to power their Fostermatic Screw Machines and Landis Grinders.

But Cities Service Pacemaker T is more than a hydraulic oil... it is a multi-purpose line of lubricants suited for many applications. Porter-Cable also uses Pacemaker 300 T for lubricating valves in the plant's compressors. Pacemaker T can be used to lubricate bearings, diesel engines, electric motors, generators, reduction gear drives, turbines and in circulating systems.

Pacemaker T is available in various viscosities to give you one line of quality lubricants that can save costly warehouse space by simplifying your inventory... cut maintenance costs and extend equipment life. These oils have high viscosity index, excellent heat resistant properties and are chemically fortified against oxidation, corrosion, rust formation and foaming.

Contact your nearest Cities Service office and an experienced Lubrication Engineer will call to make specific recommendations for your plant on the use of Pacemaker T. Or for further information, write: Cities Service Oil Company, Sixty Wall Tower, New York 5, N. Y.

CITIES SERVICE
QUALITY PETROLEUM PRODUCTS

FEBRUARY 29, 1960

For More Information Write No. 185 on Inquiry Card—Page 32



Porter-Cable Machine Company
Syracuse, New York



Porter-Cable Research Engineer testing engine for new lawnmower the company will produce soon. All new products undergo extensive research and testing before production.

Backbone of Production Line is Automatic Screw Machine. Pacemaker T gives outstanding performance as hydraulic medium in these machines as well as in Landis grinders and as a general lubricant!





(Above photomicrographs show typical contact cross sections at magnifications of from 100 to 500 times.)

here's helpful selection and use data on **THE CREAM OF OVER 1500 CONTACT GRADES**

Just off press, this 56-page Stackpole Booklet 12-A is a practical guide to composition contact grades, possibilities, properties, uses, shapes, sizes . . . even contact attachment methods.

By molding contacts from two or more metal or carbon-graphite powders, Stackpole Custom Engineering obtains a maximum of the advantages of each material and minimizes its disadvantages. The result is a greater overall efficiency than is generally possible with a single solid metal or alloy. Many of the most desirable contact metals cannot, of course, be alloyed satisfactorily *but they can be made from powders in almost any desired proportion.*

Composition contact engineering under exclusive Stackpole processes is characterized by its extreme flexibility in obtaining exact needed properties. This is best evidenced by the fact that over 1500 different grades representing different metallurgical mixtures have been produced for specific applications.

In various instances, their advantages permitted increased equipment ratings. In others, they paved the way to smaller, less costly equipment. Often, they simply combined long, trouble free operation with maximum economy.

This Booklet by no means attempts to present composition contacts as a universal answer to *all* problems. However, for design and production engineers who appreciate the basic logic behind them and who recognize that conventional contact types often leave something to be desired, it will provide a wealth of helpful information and guidance.

A copy may be obtained on letterhead request (ask for Booklet 12-A) to: STACKPOLE CARBON COMPANY, St. Marys, Pennsylvania.

STACKPOLE CUSTOM ENGINEERED CONTACTS



Also: BRUSHES for all rotating electrical equipment; GRAPHITE CHEMICAL ANODES BEARINGS • SEAL & CLUTCH RINGS • VOLTAGE REGULATOR DISCS • FRICTION SEGMENTS CERAMIC MAGNETS . . . and many other carbon, graphite and metal powder products.

For More Information Write No. 186 on Inquiry Card—Page 32

Catalog Files

RECTIFIERS

A data sheet on miniature silicon controlled rectifiers. Presents ratings, specifications, and design curves.

Solid State Products, Inc.

Write No. 13 on Inquiry Card—Page 32

SOLDERING IRONS

A bulletin on Ersa-Minitype soldering irons. Contains descriptions, charts, and a curve.

Caig Laboratories

Write No. 14 on Inquiry Card—Page 32

STAINLESS STEEL TUBING

A 34-page booklet on stainless steel tubing. Gives details on sizes, grades, design, and corrosion resistance. More than 25 tables are included, along with photographs and drawings.

Allegheny Ludlum Steel Corporation

Write No. 15 on Inquiry Card—Page 32

TOGGLE SWITCHES

Catalog 73d contains information on high-performance toggle switches and switch assemblies. The 32-page bulletin includes detailed descriptions, photographs, diagrams, dimensional drawings, and specification tables.

Minneapolis-Honeywell Regulator Co.

Write No. 16 on Inquiry Card—Page 32

WELDING ACCESSORIES

Catalog EW-211 describes arc welding accessories and supplies. Includes information on headshields, goggles, cleaning tools, electrode holders, ground clamps, and miscellaneous equipment.

Hobart Brothers Co.

Write No. 17 on Inquiry Card—Page 32

PURCHASING

WHY DOES IT PAY TO SPECIFY NICHOLSON OR BLACK DIAMOND FILES?



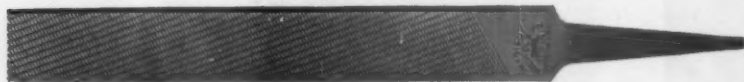
You get more for your money. You purchase efficiency. Nicholson and Black Diamond files are designed to produce maximum work. Careful attention is paid to size, shape, teeth, angle of cut. As a result, these files do more work in less time. That's where you save money in filing... time saved.

Nicholson and Black Diamond files are made from select steel. They are manufactured and inspected with infinite care. You save on tool replacement costs because this extra care and quality result in longer life.

Nicholson makes 6000 types of general and special purpose files. Whatever your production or maintenance job... whatever material you work with... there's a Nicholson or Black Diamond file to meet your needs.

In addition you get careful attention when you purchase. Nicholson and Black Diamond files are sold exclusively through industrial distributors. They provide the finest goods in the least possible time. They know the products they sell, and can help you with your metal-removing problems.

The next time you order, specify Nicholson or Black Diamond brands. They represent quality of manufacture and performance.



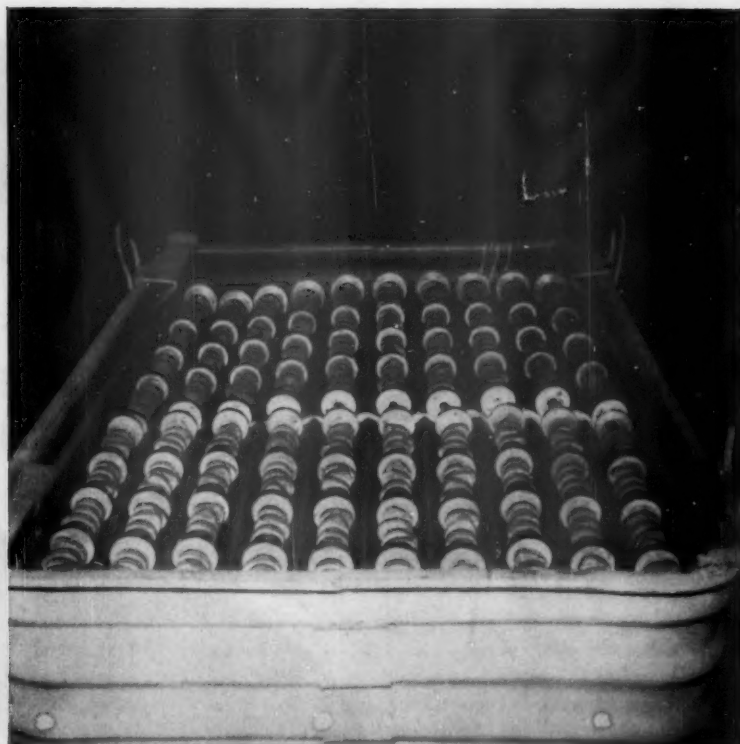
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NICHOLSON FILE COMPANY, PROVIDENCE 1, R.I.
Files • Rotary Burs • Hacksaw and Band Saw Blades
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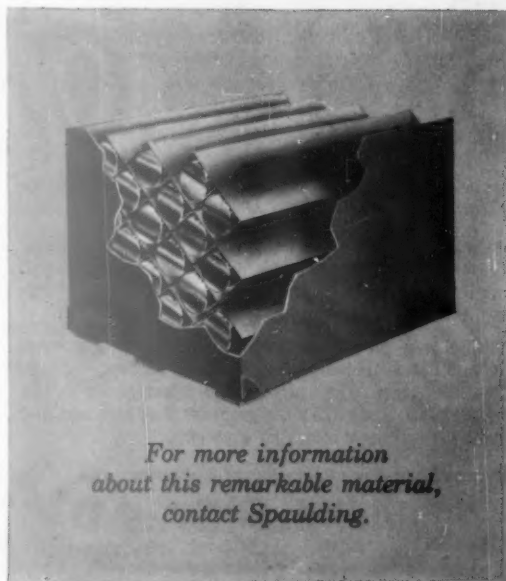
For More Information Write No. 187 on Inquiry Card—Page 32

IF finding a
practical dunnage
material has been
your problem...



NOW YOU CAN SOLVE IT WITH SPAULD-PAK*

*(Spaulding's Unique New Packing System
that eliminates damage to parts and assemblies, cuts
materials-handling time and costs!)



*For more information
about this remarkable material,
contact Spaulding.*

SPAULD-PAK is extra tough Spaulding Vulcanized Fibre formed into lightweight corrugated sheets of spacers for the protection of parts during handling or shipping.

SPAULD-PAK forms its own packing pattern, reduces materials-handling time and labor.

SPAULD-PAK keeps parts neatly separated, protecting

them from damaging each other while maintaining even weight distribution. It handles all shapes safely.

SPAULD-PAK is available in a variety of sizes or can be made in special sizes to fit your containers.

SPAULD-PAK is reusable, low in cost initially. It resists tearing, piercing, oils and greases.

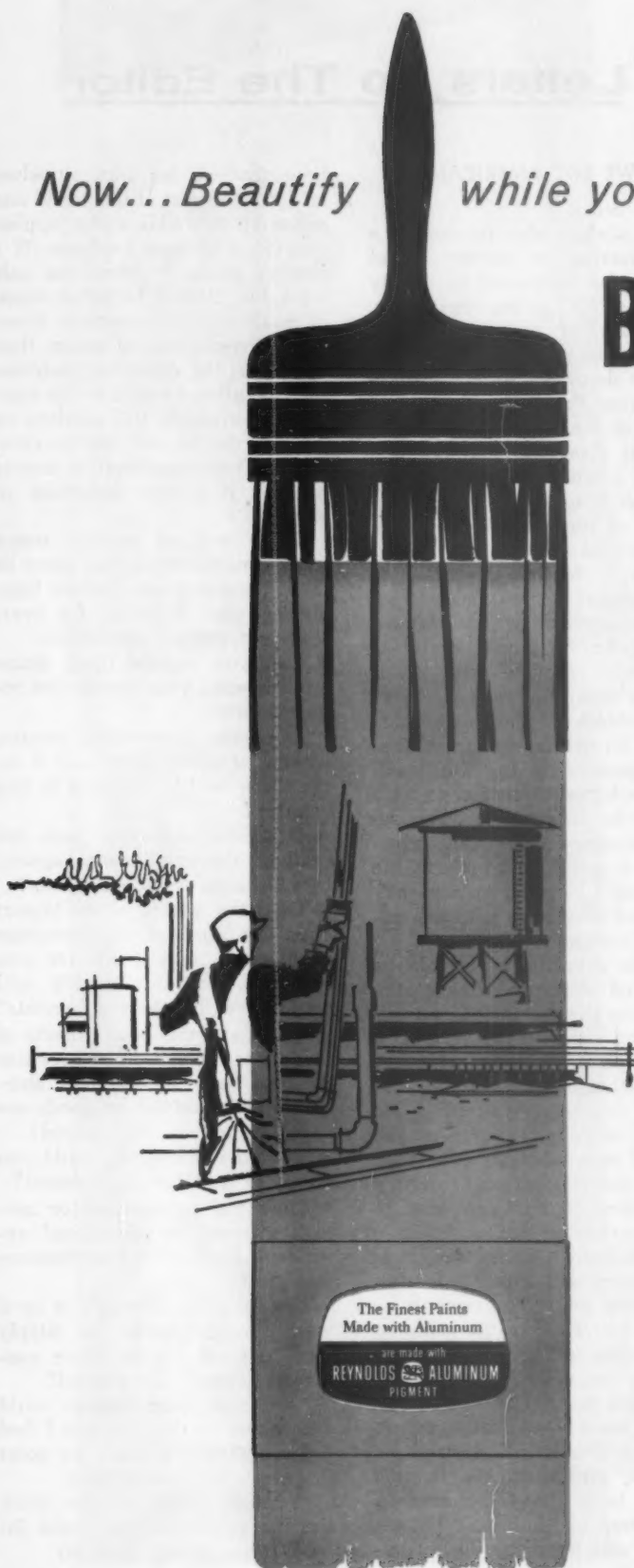
SPAULDING FIBRE COMPANY, INC.
Materials Handling Division
DOVER, NEW HAMPSHIRE

Branch Factory:
1325 SAN JULIAN ST., LOS ANGELES 13, CALIF.

For More Information Write No. 188 on Inquiry Card—Page 32

Now... Beautify while you protect with

BRUSH-ON COLORED ALUMINUM PAINTS



Dazzling new colored aluminum paints and roof coatings are now offered by leading paint manufacturers using Reynolds Aluminum Pigments. These coatings *decorate* roofs, fences, masonry, tanks, fixtures and machinery—and *protect* them with a tough aluminum "shield." These eye-appealing colored aluminum coatings don't have to be sprayed on... an ordinary paint brush will do the job.

The new colored aluminum paints still give you all the famous aluminum advantages: heat reflectivity, insulation, corrosion resistance and protection against rust. Yet these new paints are economical to use, and are available in formulations suitable for indoor and outdoor use.

Reynolds does not make paint, but does supply the finest aluminum pigments to leading paint manufacturers. For further information and names of manufacturers, write *Reynolds Metals Company, Box 2346-PP, Richmond 18, Virginia.*

Watch Reynolds TV shows—"ALL STAR GOLF",
"BOURBON STREET BEAT" and
"ADVENTURES IN PARADISE"—ABC-TV

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You save money, cut down on paper work, and keep engineering people happy when you buy recording charts from this new GC Stock List. More than 15,000 circular, strip and rectangular charts are listed here, cross-indexed by instrument manufacturer and type—most are available for immediate shipment.

You'll save money—GC Recording Charts are more economical and you can order in large quantities, for periodic shipments. You'll reduce paper work—you'll write fewer orders—and deal with only one chart representative. Your engineering people will be happy—GC Recording Charts will give them the performance they demand.

This 92-page stock list is factual and it's free. Let us send you a copy. Also, send us a chart number or two, we'll send you samples. Have your engineers put these GC Recording Charts to every test in the book—we'll rest our case on the results.



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For More Information Write No. 190
on Inquiry Card—Page 37

Letters To The Editor

MUST WE BUY AMERICAN?

Dear Sir:

It is always nice to receive a questionnaire or survey ballot that can be completed by simply putting an "X" in the appropriate block. As to the question of whether or not the purchasing agent is deserting American suppliers (see Feb. 15 issue, p. 15), I do not feel that the answers are that clear cut and for this reason, I am casting my ballot with this letter.

It is of concern to me to see our national reserve gold being shipped to foreign countries to cover import commitments. This is especially true when we have a domestic forty-cent dollar. I agree with anyone who states that we must find a solution to this problem or face a genuine crisis. I do not, however, feel that the responsibility for this trend or the solution thereof rests with the purchasing agent or procurement officer of American industry. As a procurement officer, the individual's primary responsibility and allegiance is to the employing company.

In this capacity, he should be concerned with procuring at the right time the commodities needed in the right quantities and at the best price consistent with correct purchasing and business ethics and not with what effect his decision is going to have on the national economy. His allegiance to his government and country is no more or less than that of any American citizen.

I personally do not see anything wrong with going to foreign sources for your requirements as long as you observe the common sense rules of procurement. If there is an alarming trend towards this practice, then certainly there must be something wrong with our domestic industrial or economic structure. We in this country have always believed in free enterprise and honest competition and I for one do not be-

lieve that we can shut ourselves off from the rest of the world and say that this philosophy applies only to American business. If a foreign producer offers for sale a product that is better or equal in quality to its American counterpart regardless of price, then I feel that the American purchasing executive owes it to his company to evaluate this product on its own merits and not to eliminate it from consideration simply because it is not American in origin.

There are, of course, many other considerations that must be taken into account before committing your company for overseas or foreign commodities.

- Can you depend upon deliveries meeting your production requirements?
- Does the commodity require service or spare parts, and if so, are these readily available in this country?
- If service and spare parts are available through domestic agents, how reliable are these agents?
- Does the quality of the import equal or surpass its American counterpart, and if so, are you confident that this quality will continue with future shipments?
- What are the legal aspects of foreign trade and what recourse do you have if incorrect shipments are received or goods are received broken or damaged?
- Should this happen, could you afford to wait for replacement?
- Does the volume and/or savings warrant the additional expense of conducting long-distance business?
- How disastrous would it be if your foreign source of supply were cut off due to other conditions beyond your control?

I am sure your readers could add others to this list, but I feel this is sufficient to make my point that price isn't everything.

You ask, "What do you think are the causes of our rapid in-

(Please turn to page 52)



JUST OUT!

50 fact-filled pages... on

LINK-BELT'S NEW spherical roller bearings

HERE are all the facts, all the features of Link-Belt's new spherical roller bearings. Book 2760 is packed with diagrams, photos, charts, formulas—explains the unmatched performance and economy advantages of these self-aligning bearings. And there's an illustrated section on the machines and procedures that enable Link-Belt to maintain the strictest tolerances ever achieved in standard bearings. For your copy, mail the coupon today!

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LINK-BELT

SELF-ALIGNING BALL AND ROLLER BEARINGS

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Dept. PG, Prudential Plaza, Chicago 1, Ill.
Please send a copy of the new Spherical Roller Bearing Book 2760.

Name

Firm

Address

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MORE DEPENDABLE DEAL
THAN
B&O BITUMINOUS
COALS FOR
EVERY
PURPOSE!**



B&O

Ask our man!

BALTIMORE & OHIO RAILROAD

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Letters

(Continued from page 50)

crease in imports?" This is a good question and there are a lot of people who would like to know the answer, for once the reasons are known, possible solutions can be contemplated.

If the American worker needs more money to live, then it stands to reason that his increase in pay has to be reflected in the price of the commodity he produces. If commodity prices increase, the American worker needs more money to live, and so on—and on—and on. If this same inflationary spiral does not exist in foreign countries, then their products can be produced for less, sold for less, and eventually, imported into our country and sold for less than domestic goods even after restrictive import tariffs are paid. I do not believe that foreign productivity is increasing faster than our own.

I simply feel that their productivity is reaching the point where they can concentrate more and more on foreign markets for their products. I am sure that American industrial productivity will be able to meet the demand for their products for many years to come. I believe that productivity goes hand in hand with demand, and how can either increase when inflationary pricing forces them out of the domestic or foreign competitive markets.

The present condition of high prices, high labor costs, and low value of the dollar has forced American industry to be price conscious. Economy is encouraged, if not demanded, by most American top-management teams. If the procurement of foreign raw materials or equipment will reduce or hold constant the price of the industrial end product without affecting its quality or saleability, thus enabling the industry to maintain a better competitive position in this country or abroad, then I believe the present trend of importing will continue, if not increase.

James R. Caudill
Director of Purchases
National Research Corporation
Cambridge, Mass.

For More Information Write No. 192 on Inquiry Card—Page 32

here

here

here

...or any place

Alan Wood Super Diamond floor plate ...is easy to bend

The arrangement of the exclusive A. W. Super Diamond pattern lets you bend this flooring at any place on the plate. Form this heavy duty floor plate to fit steps, ramps and walkways . . . it bends readily.

Fabrication is easy . . . you can shear it, weld it and match it wherever necessary. A. W. Super Diamond provides a safe, non-skid footing . . . won't chip, splinter or crack. Save on cleaning costs, too . . . A. W. Super Diamond is easily swept, mopped or hosed from any direction. It drains freely . . . no pockets to hold dirt.

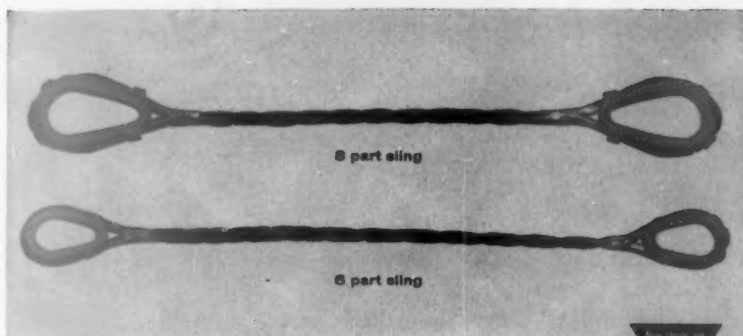
For easy fabrication and installation . . . for safety . . . for long wear . . . specify A. W. Super Diamond. Write for Bulletin SD-S5.



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For More Information Write No. 193 on Inquiry Card—Page 32



Now Tuffy
covers all the
bases...



NEW HAND-BRAIDED SLINGS are added to the UNION line

Union Wire Rope Corporation, makers of famous Tuffy patented, 9 part, machine-braided slings, now bring you top quality hand-braided slings. Meet the new members of the Tuffy team:

The hand-braided 6-part sling provides wide bearing area; greatest single-plane flexibility; least strength loss under severe bending; high cutting and twisting resistance.

The hand-braided 8-part sling provides extra wide bearing area, gives extra flexibility in all planes, low strength loss in bending, highest resistance to kinking and spinning.

Like the entire line of Tuffy slings and hoist lines, these new slings are the product of extensive field and laboratory research. They're specially designed for extra strength and flexibility. Tight end-braiding keeps component parts equal in length so that each rope carries its full share of the load.

In these new slings you'll get quality backed by Union Wire Rope experience and integrity. And you'll get a bigger dollar value in longer service life with greater safety.

Your Tuffy Distributor Will Help You Save Money on Every Sling and Wire Rope Use

He's the man to see when you're replacing or adding slings, hoist lines and wire rope. He is set up for fast service, backed by his nearby Union Wire Rope branch office and warehouse staff and factory engineers. Get in touch with him.

Tuffy Tips
—on safe use of
Slings and Hoist Lines



Professional
Weight
Lifters
Work the
Safety
Angles

Here's a tip that could save an injury and absenteeism. The weight lifter's secret is proper leverage. Plus use of major leg muscles instead of back muscles. He never leans over to pick up the load. He squats down as near as possible to it. Lifting action comes from legs and thighs. If your workers must use muscles for some of the lighter lifting jobs, these points are worth remembering. But wherever possible—and always for heavy loads—use hoists and slings.

More Tips for Reducing Materials Handling Accidents

1. Teach your workers rated load factors. Warn them not to overload slings.
2. Use the right size hoist for every heavy lifting job. Don't put the load on muscles.
3. Show workers how to rig hoists properly and safely.
4. Inspect hoist load brakes often. Slipping or dragging brakes are a hazard.
5. Be sure to use the proper sling for the job. Don't assume that all slings made of wire rope are right for all lifting jobs.

FREE!

New Tuffy
Sling Handbook



All about slings from A to Z, including types, dimensions and rated loads. Address **Union Wire Rope Corporation, 2282 Manchester Ave., Kansas City 26, Missouri.** Specialists in high carbon wire, wire rope, braided wire fabric, and stress relieved wire and strand.

UNION  **Wire Rope**



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OTHER SUBSIDIARIES AND DIVISIONS: Armco Division • Sheffield Division • The National Supply Company
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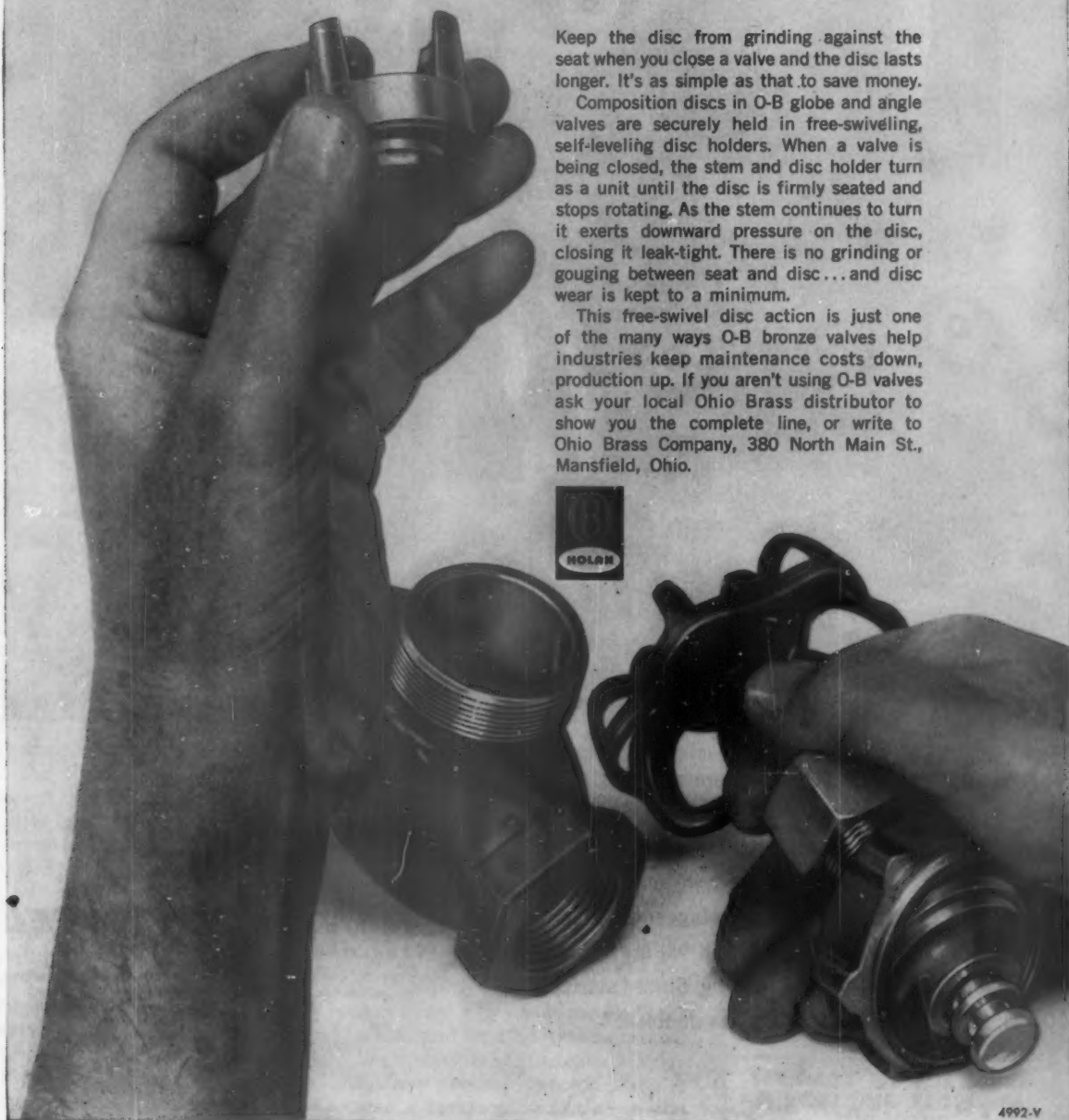
O-B VALVES

this disc holder can save you money...

Keep the disc from grinding against the seat when you close a valve and the disc lasts longer. It's as simple as that to save money.

Composition discs in O-B globe and angle valves are securely held in free-swiveling, self-leveling disc holders. When a valve is being closed, the stem and disc holder turn as a unit until the disc is firmly seated and stops rotating. As the stem continues to turn it exerts downward pressure on the disc, closing it leak-tight. There is no grinding or gouging between seat and disc...and disc wear is kept to a minimum.

This free-swivel disc action is just one of the many ways O-B bronze valves help industries keep maintenance costs down, production up. If you aren't using O-B valves ask your local Ohio Brass distributor to show you the complete line, or write to Ohio Brass Company, 380 North Main St., Mansfield, Ohio.



4992-V

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I CAN SEE GRANITE CITY GROWING"**



"I guess I'm about as close to where steel begins as you can get—third helper on Number 21 open hearth furnace. On the next shift they'll tap 500 tons of steel from this furnace. That's twice as much as we used to tap. We doubled its capacity by putting in a bigger hearth, a basic roof and larger charging doors. And we are using more oxygen to speed melting and refining. Since I started here 10 years ago, our ingot capacity has doubled."



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STEELMAKERS TO MIDDLE AMERICA

HOME OFFICE: Granite City, Illinois • SALES OFFICES: Dallas • Memphis
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For More Information Write No. 196 on Inquiry Card—Page 32

Purchasing People In The News

Charles T. Haffey has been named director of purchases for **Chas. Pfizer & Co., Inc., New York, N. Y.** He succeeds **Frank J. D'Antonio** who has retired after 42 years of service with the company. Mr. Haffey came to Pfizer in 1947 as an assistant buyer at the company's Brooklyn plant.



Charles T. Haffey

He became a buyer of machine and capital equipment purchases in 1949. He was made purchasing agent at Pfizer's Groton, Conn., plant in 1952 and held this post until made assistant director of purchases in February 1959. Mr. Haffey received his B. S. degree from Fordham University's School of Business in 1948 and was awarded an M. B. A. from New York University Graduate School of Business in 1951. He has also attended NYU School of Commerce, the University of Hawaii and Brooklyn Polytechnic Institute. He is a past president of the Purchasing Agents Association of Connecticut and is currently chairman of the fuel oil committee of the National Association of Purchasing Agents.

Hugh Bowler has been named administrative assistant to **Frank J. O'Brien**, vice president for purchasing at **Motorola Inc., Chicago, Ill.** In his new position Mr. Bowler will be in charge of all purchasing office services. He was previously purchasing office manager in the company's Com-

munications Division for the past five years. Before coming with Motorola, he was with Montgomery Ward and Company in Chicago. Mr. Bowler is a graduate of Loyola University.

Charles Jusits is the new communications purchasing office manager. He was purchasing office manager in Motorola's Chicago Military Electronics Division. He has been with Motorola since 1953 starting in the purchasing department as expeditor. **Robert Wasni**, expeditor in CMEC purchasing, will be promoted to purchasing office manager. He has been with the company since 1956. He is a graduate of St. Joseph College, Indiana.

International Business Machines Corporation has announced the appointment of **William B. Bryant** as manager of the general purchasing department at the IBM Supplies Division engineering laboratory in Vestal, N. Y.



William B. Bryant

Mr. Bryant joined IBM in 1943 in Endicott, N. Y. In 1946, after military leave of absence, he re-joined the company as an auditor in the production control department in Endicott. In 1956 he was made a buyer at the Endicott plant, and in 1958 was advanced to purchasing administrator. Prior to his present appointment he was a technical specialist in the IBM Federal Systems Division

plant in Owego, N. Y. He attended Pennsylvania State College.

The promotion of **A. M. Egge-**man to director of purchases for **Witco Chemical Company, Inc., New York, N. Y.**, has been announced. He replaces **Micheal D. MacBurney**, who was recently appointed general manager of Witco's Pioneer Products Division. Previous to his promotion, Mr. Egge-man was assistant director of purchases. Before that he had



A.M. Egge-man

been with Rexall Drug Company for 13 years. He is a graduate of Washington University, second vice-chairman of the Chemical Buyers Group of the National Association of Purchasing Agents, and a member of the New York Purchasing Agents Association.

The Dyestuff and Chemical Division, General Aniline & Film Corporation, New York, N. Y., has announced relocation of both the traffic and purchasing departments from Linden, N. J., to New York City. **S. S. Colman**, purchasing agent and **John B. Sondey**, traffic manager as well as their staffs will now be at the division's headquarters at 435 Hudson Street, New York 14.

SEE PAGE 152 FOR MORE PURCHASING PEOPLE IN THE NEWS

all
NEW



I-R Size 810 IMPACTOOL
3/4" Square Drive

**NEW DESIGN
FASTER SPEED
GREATER POWER**

... to give you an

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Multiply these Annual Dividend Savings by the number of Impacttool operators in your plant, and you can see why management today is taking a new look at portable tool operations.

There's a fast, easy way to calculate the amount of Dividend Savings on Payroll Dollars that new I-R Tools can help you earn in just one year—without adding to your present payroll.

It's yours without obligation. To get it, call your I-R AIRengineer today. Or write Ingersoll-Rand, 11 Broadway, New York 4, N. Y.



Ingersoll-Rand

*Tools plus AIRengineering
increase output per man*

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For More Information Write No. 197 on Inquiry Card—Page 32
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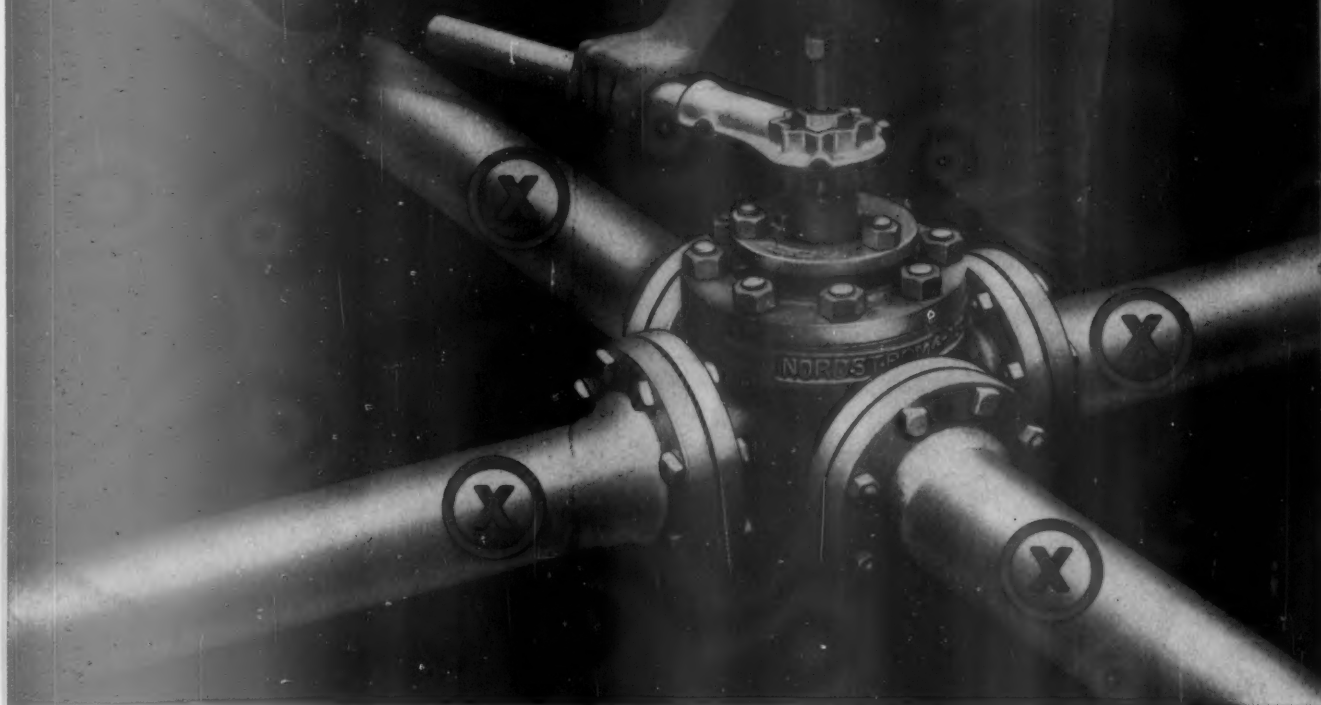
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AMERICAN SMELTING AND REFINING COMPANY

ASARCO

FEDERATED METALS DIVISION

Measurement / Control Ideas for cutting costs:



(X) MARKS THE SPOTS where 4 valves are replaced by 1...

... And that one valve is a Rockwell-Nordstrom Multiport lubricated plug valve. Above, it is controlling flow in *four* directions—a multiple job only this type of valve can do.

This could mean big savings in your plant, plus more efficient traffic control of everything you flow through pipe. For instance: A large sugar refinery had trouble efficiently routing slurry to process units. A Rockwell field engineer recommended Multiport valves, since *one* Multiport does the work of *three* or *four* ordinary valves. With fewer valves and simplified piping and fittings, the new installation quickly paid for itself by eliminating costly flow control errors and improving quality. And since Rockwell-Nordstrom is the

most *complete* line of lubricated plug valves, the Rockwell field engineer was able to make a number of other valve suggestions for improving flow control, preventing waste, and reducing valve maintenance.

There are literally hundreds of ways Rockwell field engineers are helping manufacturing and processing plants save time, money, and materials through better measurement and control methods. The experience of the world's largest manufacturer of valves, meters, regulators, and other measurement and control products, can pay off for you, too. Wherever gases or liquids flow through pipe in your plant, there is a real opportunity for savings. It will cost you nothing to get the facts. Simply send the coupon.

ROCKWELL

The leading single source for Measurement / Control products and ideas

For More Information Write No. 199 on Inquiry Card—Page 32

HOW MUCH COULD YOU SAVE?

There is hardly a plant of any kind—including yours—where the right application of the right measurement and control methods and equipment won't produce savings many times the modest cost involved. It will cost you nothing to have a Rockwell Field Engineer *show* you. Simply send the coupon below, now.

SEND COUPON NOW!

"IN-PLANT" METERING:

LIQUIDS AND GASES

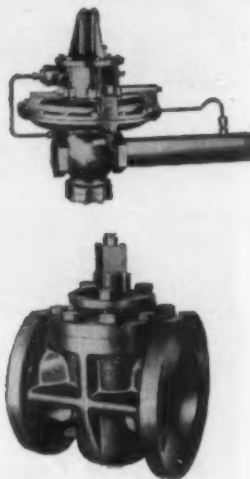
Rockwell gas and liquid meters, properly applied, can improve quality control, sharpen cost control, and prevent waste in almost every plant department. A Rockwell Field Engineer can help you find *where* meters will cut costs . . . and Rockwell has a complete line of meters to measure practically anything that will flow through pipe.



CONTROLLING PIPED MATERIAL:

LIQUIDS AND GASES

More efficient control of all the material flowing through pipes in your plant is a positive step in cutting costs. There are new applications and new ideas for using gas pressure regulators and valves that will stop wasteful, inefficient, and dangerous handling of fuels, production fluids, and products. A Rockwell Field Engineer can show you *where* and *how*.



MEASUREMENT & CONTROL DEVICES

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Please send literature on ☐ Controlling gas pressures; ☐ Valving gases, liquids and slurries; ☐ Measuring liquids; ☐ Measuring gases.

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Capewell's
new concept in
band saw blades
is setting new
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THE CAPEWELL MFG. CO.
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For More Information Write No. 200
on Inquiry Card—Page 32

FOB—"filosofy of buying"

IN THE MIDST of all the uproar over hidden persuasion, status seeking, motivational research, and all the pseudo-scientific gimmickry designed to explain why people buy, it's good to recall the words of the late Fred Heaslip. Fred, vice-president, purchasing, for Fairbanks-Morse, a prominent member of N.A.P.A., and Shipman Medalist in 1939, once had this to say to a group of advertising men:

"The purchasing agent is a human being, and likes to read attractive pages and mailing pieces. But they must tell a real story in sufficient detail to warrant his interest. The advertising pages of business papers are as valuable to the reader as the editorial pages.

"But super-quality exploitation—much of it often imaginary—has no appeal for the purchasing agent. We know that you know that we know better. As for size of space in business paper advertising, the greatest handicap to small space is that it seldom has any message, and if it does not explain the company's product it is not even good reference advertising.

"Reference advertising in directories is constantly used by buyers. There should be no flowers in such copy. It should merely indicate the kinds of products manufactured, where obtainable, and the reliability of the manufacturer."

MAD at your Congressman?
Mad at all Congressmen?

Maybe what you need is the newest in packaged politics, automated griping. For 33 cents a month, an outfit called Acopoll (Co.) 430 S. Michigan, Chicago, will send your opinions to every U.S. Congressman. At least that's what the company's ad says. Presumably details will be sent if you ask for them.

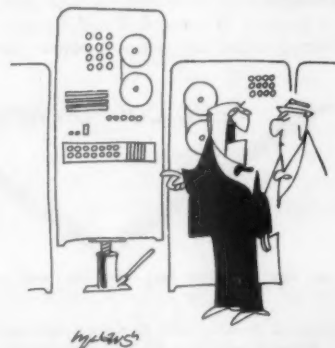
Just imagine issuing a blanket order for blasts agin' the govern-

ment! Think of the deadly silence that will fall over our saloons, park benches, subways and water coolers if this thing catches on! Think of Nixon, or Kennedy, or Humphrey beaming at a crowd and having some splenetic citizen scream at him, "Yuh bum, yuh! I hope you got my message 232-11 of the 15th inst.!"

THERE'S BEEN a falling out somewhere. A P.A. for a certain company in New England—that proudly announces on its letterhead that it is distributor for a famous line of products—has sent us an urgent letter asking us where he can buy the equivalent to that famous line.

WE'VE NEVER felt very creative or value-minded coming face to face with a toothbrush in the morning. But the boys at Eastman Kodak's Kodak Park did—at least with those tooth brushes used for cleaning tight radius rims on metal containers that had to be absolutely free of photographic contamination.

The buyer found that the regular nylon-bristle tooth brushes bought to do this job were obtained from local drug stores at \$.53 each. He sought out nine other sources for the brush, but



"... This one was doing such a good job on value analysis I gave it a raise..."

none was satisfactory. In his search, however, he found that another division of the company was buying a brush of similar size and shape. Tests showed it was suitable for the rim-cleaning job. By combining orders for the two divisions, he was able to get the brushes at \$.1785 each. Kodak saves about \$1000 a year on that one item.

Maybe we'll take a little closer look tomorrow morning at 6:45.

WHO KNOWS where it will all end? The latest device for visual presentation of a sales pitch is a machine called the Skyjector. It will throw an image or a message from the ground on to any large surface, such as a mountain, a cloud or a neighboring skyscraper. The powerful light and lenses used in the device can get the image up to several hundred feet square—if the salesman can find himself a surface big enough to project it on. The sales story is told best on cloudy nights according to the inventor M. Fernand Auberson, of Geneva, Switzerland.

Ah, m'sieu', what will those grubby Americans think of next to deface the countryside!

SPEAKING of advertising, some kind of award is due the companies that sponsor the slowly increasing number of superb radio and TV programs now available to those who have had their fill of gunfire and the sound of brass knuckles against private eyes' chins. We've just enjoyed three in three days (all sponsored by oil companies, coincidentally): "The Play of the Week," sponsored by Standard Oil of New Jersey; The Metropolitan Opera broadcast, sponsored by Texaco; and Leonard Bernstein and The New York Philharmonic Young People's Concert, sponsored by Shell. There are a number of others. To all responsible for them, this department offers many huzzahs and thanks.

FEBRUARY 29, 1960

WIRE FILTER CLOTH

WIRE SPACE CLOTH

WIRE MESH CLOTH

**CALL ON NEWARK
When Purchasing**

**PARTS FABRICATED
WITH WIRE CLOTH**

TESTING SIEVES

TESTING SIEVE SHAKERS

Make NEWARK your source of supply for Wire Cloth and Wire Cloth Products. We weave all of our own cloth from which we fabricate parts for our customers...thus insuring both quality of cloth and accuracy of construction.

Newark Wire Cloth is available in all standard widths, all meshes, all commercial metals...the Newark line is a complete line even up to 400 mesh cloth. And if your problem is one of parts design, our engineers will be glad to aid. May we quote on your requirements?

NEWARK
for **ACCURACY**

Newark Wire Cloth
COMPANY

351 VERONA AVENUE

NEWARK 4, NEW JERSEY

For More Information Write No. 201 on Inquiry Card—Page 32



Thousands of ways to cut bearing costs lie in our huge stock of high-precision dies for sintered bronze or iron bearings. The world's largest inventory of dies is ready at an instant's notice to turn out the exact bearings you need . . . without the delay or expense of tooling. One more assurance of the exceptional service you can expect of Bound Brook.

BOUND BROOK

Bound Brook Oil-less Bearing Co., Bound Brook, N. J.
Pioneer in Powder Metallurgy Bearings and Parts.
Plants at Bound Brook, N.J. and Sturgis, Mich.

In Purchasing...

A purchasing man who lives up to the definition of an executive is one who carries on administrative work involving forethought and planning, and considerable discretion as to ways and means by which such work shall be accomplished.



There's no better way to describe the operations of Carrier Corporation's director of purchases A. G. "Tony" Ruediger. And we're happy to bring you in this issue a study of how Tony's department operates and what it's accomplishing under his executive direction. Starting on page 70 we cover what Carrier's purchasing group is doing in regard to decentralization, blanket orders, buyer specialization, cost reduction, and purchasing-engineering relationships.

Close control of specifications and careful testing of materials pose no problems for big companies. They have the personnel and equipment to do the job. But smaller organizations don't, so they must devise their own systems or risk using substandard or off-quality materials. One purchasing department's solution to the problem, which can be adapted by smaller companies, is described in an article on page 82.



How long has value analysis existed? Why, just as long as good buyers have been analyzing values. Organized value analysis is, of course, a fairly recent development. But there are a number of purchasing departments that have been using the basic techniques for a long time. One value buying project that goes back a few decades is covered in an article on page 85.

Speaking of value analysis, I'd like to remind you of our annual Value Analysis Issue, which will be published this year on May 23, to coincide with the National Association of Purchasing Agents Convention in Los Angeles (May 22-25). It promises to be our finest V.A. issue to date.

In addition to hundreds of audited cost-saving case histories, the issue will feature a comprehensive study of value purchasing at the Ford Motor Company. In it, you'll read how purchasing's cost and purchase analysis section helped Ford market the sensational new Falcon car at the most competitive price in the compact field. This is the story of one of the most significant developments in modern purchasing. You'll be hearing more about it soon.

Ray Richards
Ray Richards
Publisher

One order, one source
... every fastener need



You name
it...we
make it
...or will!

Common or uncommon, standard or special, Screw and Bolt Corporation of America manufactures engineered fasteners for every conceivable use in wood... each produced by modern equipment, skilled personnel and engineering know-how.

For standards—choose from America's most complete line of industrial fasteners, and get fast service.

For specials—benefit, as other manufacturers are, from experienced engineering advice, and get the best fastener for your money.

Whatever the problem, our field representatives are ready to help.

VMA 8248

**SCREW AND BOLT CORPORATION
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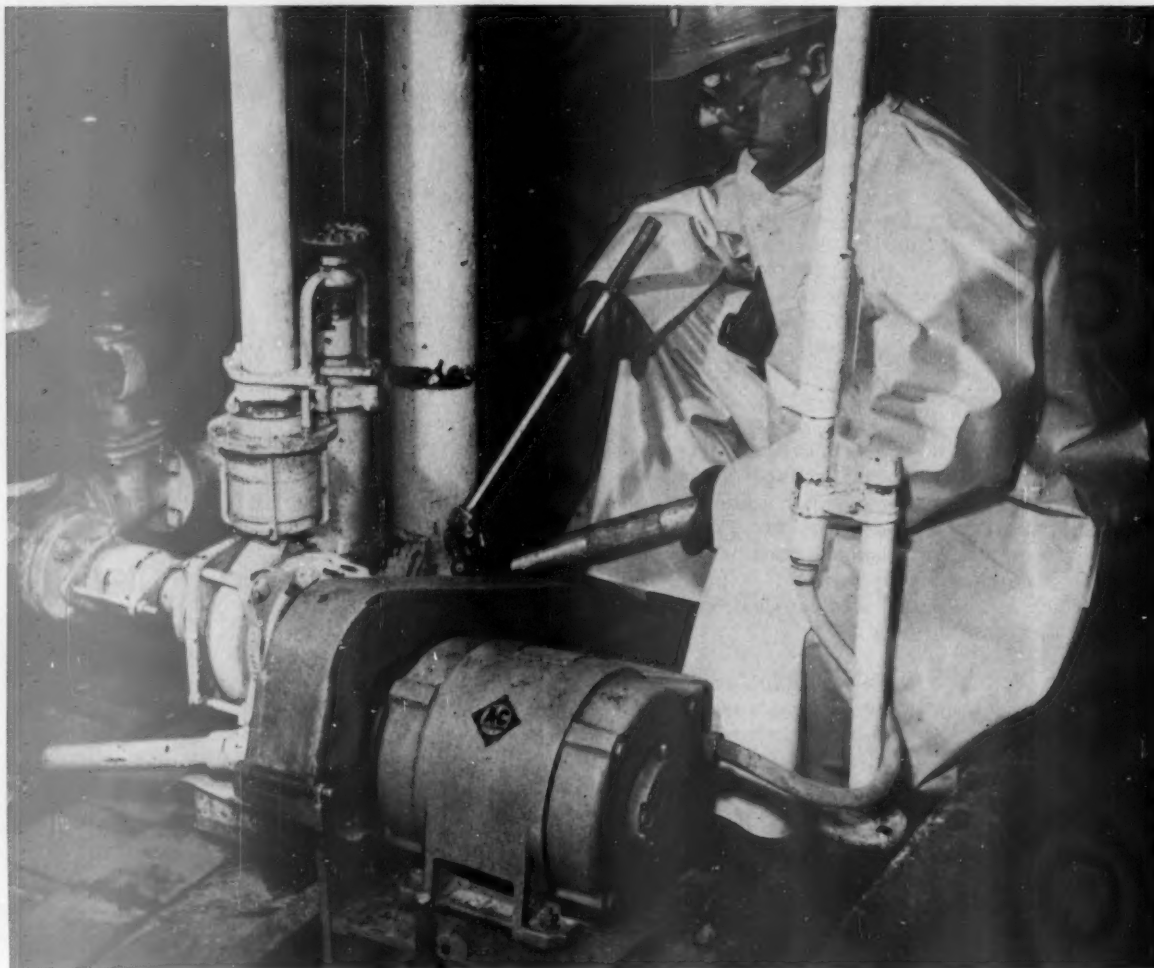
America's Most Complete Line of Industrial Fasteners

For More Information Write No. 203
on Inquiry Card—Page 32

ALLIS-CHALMERS



A-1235



ACID AREA APPLICATION. Safety equipment and clothing are a "must" for personnel in the acid atmosphere of Dow's chlorine plant at Freeport, Texas. This **Super-Seal** motor came prepared, too — with **Poxeal** insulation guarding the stator.

Nothing...but nothing...stops Super-Seal motors

In a tough acid pump installation, Dow Chemical's Texas Division experienced no end of motor troubles. It seemed nothing could stand up in that humid, corrosive atmosphere. Reports Dow: "Even with totally enclosed motors, winding failures were frequent." And, they might have added, expensive.

Then came **Super-Seal** motors — with amazing **Poxeal** insulation. A durable case of epoxy-resin encloses the winding end turns and slot portions of the stator... the most complete protection ever developed. Result? The

Super-Seal motor, after two years of continuous operation in the acid area, is as good as ever. So good, in fact, that Dow has ordered 150 **Super-Seal** motors for a new chemical plant at Freeport, Texas.

Isn't it time to reevaluate your motor standards? There's a good chance that **Super-Seal** motors can solve your motor problems, too. Contact your A-C representative or distributor, or write **Allis-Chalmers**, General Products Division, Milwaukee 1, Wisconsin.

Super-Seal and Poxeal are Allis-Chalmers trademarks.

For More Information Write No. 204 on Inquiry Card—Page 32



The Auditor: Friend Or Foe?

IN THE MINDS of many purchasing agents, the auditor is a kind of bogeyman. He comes into the purchasing department armed with pencil, calculating machine, and a how-many-pieces-of-paper-do-you-handle attitude. His approach is strictly that of an accountant. He doesn't know or appreciate what purchasing is doing, so he can't properly evaluate its performance. An internal audit is simply an attempt to judge what is basically an exercise in judgment according to a rigid rule book.

Now there's a certain amount of truth in each of these charges, as any purchasing man who has been audited can testify. But half-truths are dangerous, and the P.A. whose relations with auditors are colored by these misconceptions is doing a disservice to himself and to purchasing in general.

The audit is a distinct and necessary function of business. Purchasing should accept the principle of the audit—completely and ungrudgingly—then work for a better understanding with those who audit his operations. Given a little insight into the nature of the buying job and the problems of his fellow-custodian of the company's funds, the auditor can put powerful support behind purchasing's drive for recognition and autonomy.

Consider the auditor's report on purchasing submitted to the top management of a large eastern equipment manufacturer. Plenty of sweet was mixed in with the sour. Among his recommendations were these:

- That management draw up a detailed written policy, clearly establishing purchasing's responsibility and authority;

- That expediting be made purchasing's responsibility exclusively;

- That special efforts be made in the operating departments to cut down the number of rush requisitions;

- That material control be prohibited from issuing releases against blanket orders without approval from purchasing;

- That separate buying by research and development be eliminated and returned to purchasing;

- That purchasing be kept free of reciprocity pressures, if it is to do an efficient job of buying.

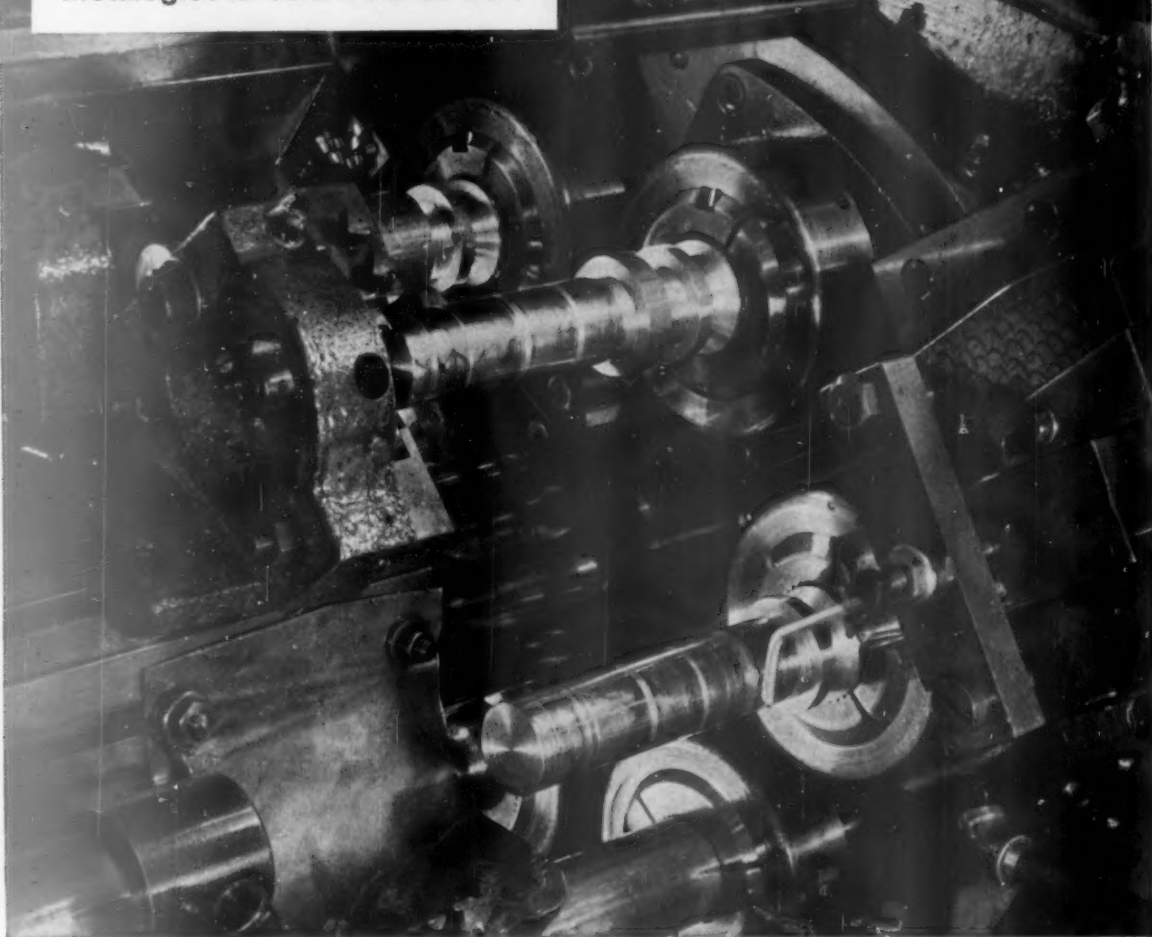
In this particular case, some of the recommendations made were not made in defense of the purchasing department. Purchasing, through its own weakness or indifference, had allowed unhealthy situations to develop. But regardless of who was responsible, the situations had to be cleaned up for the good of the purchasing agent and the good of the company. And the auditor was the man who led the fight to get it done.

A good audit is a good thing for purchasing. Don't buck the auditor. Help him understand the purchasing function and before you know it you'll have made him a member of your team.

PURCHASING MAGAZINE
FEBRUARY 29, 1960

Paul V. Farrell

Metalogics in cold finished bars



The big difference in Ryerson cold finished bars— consistent machinability

When you buy cold finished bars from the nation's largest supplier of steel from stock—Ryerson—you can always count on optimum machinability with dependable consistency. Setup headaches, production snarls and rejects are reduced to a minimum because the rigid quality controls of Ryerson Metalogics assure uniformity of stock from one lot to another.

In addition to this consistency, Metalogics offers

you unequalled service in depth. With 118 years of steel service experience, Ryerson has helped solve every conceivable kind of machining problem. And Ryerson stocks are the nation's largest, including even the hardest-to-get types and sizes. So Ryerson specialists are able to recommend the very best steel for any given application.

For consistent optimum results . . . plus on-time delivery, be "Metalogical"—call Ryerson.



STEEL • ALUMINUM • PLASTICS • METALWORKING MACHINERY

RYERSON STEEL

Joseph T. Ryerson & Son, Inc., Member of the **INLAND** Steel Family

PLANT SERVICE CENTERS: BOSTON • BUFFALO • CHARLOTTE • CHICAGO • CINCINNATI • CLEVELAND • DALLAS • DETROIT • HOUSTON • INDIANAPOLIS
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For More Information Write No. 205 on Inquiry Card—Page 32

Purchasing Pointers

USING THE PURCHASING DIRECTORY—Are you making full use of your purchasing directory? Sending inquiries to a list of sources selected from a directory can often bring better results than you'll get if you waste a lot of time telephoning individual salesmen. And the handy alphabetical listing of suppliers and addresses—bound separately—is a big help to your girl when she starts to type up orders. Another idea: when a salesman gives a favorable pitch for a product you can't use at the moment, check his company's name in your directory for future reference.

TOO MANY P.O. COPIES? How long has it been since you last counted the number of copies of your purchase order that are distributed regularly? Take another look. Perhaps that second receiving copy is no longer needed. Maybe you can combine the production and stores copies. Less paper means less work.

HELP ON EXPEDITING—Most buyers believe salesmen should help with expediting. After all, if vendors never made mistakes, there would rarely be any need for follow-up. But most buyers have trouble actually getting the salesmen to expedite properly so they wind up doing the job themselves. Typically they send suppliers follow-up post cards requesting delivery information shortly before an order is scheduled for shipment. A midwestern P.A. has come up with a new idea. He gives his suppliers a supply of expediting cards and relies upon them to keep the tickler files to check up on outstanding orders.

BUYER-TRAINING TECHNIQUE—Do your purchasing trainees sit in on interviews between buyers and salesmen? You can take this one step further. Ask your sales department to let the trainee accompany a salesman on a day's rounds. Let him see how buyers look from the other side of the table. In exchange, let sales trainees watch interviews between your buyers and visiting salesmen.

PROTECTION FOR VISITORS—It's not uncommon for a visitor to get soaked to the skin while trying to get to the purchasing office from the parking lot during a rainstorm. As a good public relations gimmick have the gatekeeper keep a dozen or so umbrellas on hand to lend to visitors as they drive through. The visitor can protect himself while walking from the car to the plant and back and then return the umbrella as he drives out. Second-hand umbrellas shouldn't be too hard to get cheaply at auctions, rummage sales, etc.



Representing two important functions of modern industry—purchasing and quality control—Director of Purchases A. G. Ruediger (l.) and Quality Control's J. R. McCafferty examine air conditioners coming off the line at Carrier Corporation's Syracuse plant.

How Carrier Buys

PURCHASING at Carrier Corporation was decentralized about six years ago. The move was part of a company-wide shift from a functional type of organization to one based on products and markets.

"We've had a lot of success with the changeover," reports Director of Purchases A. G. "Tony" Ruediger. "Our division buying groups now have more flexibility and freedom to move. There's less chance of delay or conflict of interest that might come up when everything has to go through a central headquarters. However, when we think centralized buying of any items is to Carrier's best interest, we don't hesitate to use it."

Ruediger is functionally responsible for the \$150 million in purchases made each year by Carrier, one of the world's leading makers of air conditioning, heating and power equipment. Assisting him at Syracuse, N.Y. head-

quarters are a central purchasing manager and two buyers. Purchasing managers of Carrier's 19 divisions report functionally to the director of purchases. Each operating division is responsible for buying the items it consumes, with certain exceptions.

The bulk of Carrier's manufacturing is done in Syracuse, where the Machinery & Systems, Unitary Equipment, and Allied Products Divisions are located. A service department, which buys parts and supplies for all three operating divisions is also located in Syracuse.

Other Carrier divisions and subsidiaries—each with its own purchasing department—are located throughout the country.

Ruediger's headquarters group is responsible for:

- (1) Purchasing policy and procedure.
- (2) Central staff purchasing. This includes buying for the executive staff, various staff depart-

ments, and the general office services department (office supplies, cafeteria equipment, etc.)

(3) National contracts.

(4) Cost improvement studies.

Beyond these officially listed duties, headquarters purchasing acts as a clearing house for any information, standardization activities, trade relations, etc. that might help the purchasing group in any division. Ruediger and his staff will, for example, help division people get critical materials in times of shortage. In an extreme case, central purchasing takes over distribution of the material, based on the best interests of the company as a whole.

What's Bought Centrally

Central purchasing's biggest buying job, in terms of volume, is on national contracts. It issues blanket orders on such M.R.O. items as fluorescent lamps, paper towels, stationery supplies, steel strapping, oils and greases. It has

Staff purchasing regularly feeds vital information to all 19 Carrier divisions. These are typical reports issued from Ruediger's office.

[illegible]

recently been negotiating contracts on major production component parts used in volume by more than one division. Divisional purchasing managers issue releases against those contracts.

Contracts are rarely made for 100% of Carrier's business on any item. Nor are they forced on division purchasing managers willy-nilly.

"We'll enter into an agreement for a certain percentage—say 60%—of overall Carrier business," says Ruediger, "when we find someone who can offer us an advantage. The idea of using a national contract for a specific item may have been developed by the staff, or it may have come from one of the divisions. In any event, we gather all the available information here, study it, and pass it on to division managers. If the idea looks good to them and a majority okay it, we'll meet with a supplier and tie up a contract for a year. But when they

can do better locally, they're not tied down by the contract. And we'd certainly like to know about it if they do—we might consider placing the next national blanket order with the local supplier."

Push Standardization

In line with its national contract program, headquarters purchasing is pushing a program of standardization—in parts and equipment, as well as supplies. Tony Ruediger is chairman of a committee now trying to develop standards on lubricants used by more than one division. Serving with him are: Victor Donovan, central staff purchasing agent; Loris Hansen, manufacturing manager of compressors in the Unitary Equipment Division; Ray Divers, research and development engineer; Roland Hood, assistant to the general manager, Machinery & Systems Division; and Randolph Stenerson, director of materials and process department.

research and development division.

The excitement and glamor of cost reduction isn't limited to Carrier's line buying groups. Here are some projects the central staff buying organization frequently gets involved in.

● Purchasing handles the advertising department's requirements. "They may need," as Victor Donovan puts it, "anything from a beautiful girl to model a window unit to an advertising banner to trail from a helicopter." In between those limits come the everyday necessities, like letterheads.

Purchasing was buying letterheads printed on a 24-pound watermarked bond. It was expensive to buy and handle. Five tons had to be bought to get a mill run, then handled and stored. In cooperation with the advertising department, purchasing worked out a new buying plan that saved \$10,000 a year and provided

how carrier buys:

a paper that could be purchased locally in any city in the country.

- Staff purchasing had the responsibility of working out plans for bulk handling various liquids and refrigerants for the Syracuse plants. Estimated yearly savings through bulk buying and handling of commodities; paints, \$11,000; oil, \$7,100; refrigerants, \$12,900; thinners, \$11,700.

- Scrap and salvage comes under central staff purchasing. The department handles close to \$1.5 million a year in scrap and obsolete and surplus items. The lumber from copper tubing boxes alone brings in \$10,000 a year. Through close control of returnable drums, carboys, and pallets (a copy of every purchase order involving a deposit container is sent to central staff purchasing) over \$40,000 in deposits is recov-



Director of Purchases Tony Ruediger: "Our objective is to find ways of contributing to corporate profits. This requires more than improvement programs. We must take the executive approach to purchasing."

ered every year. Purchasing also is in charge of sales of used machinery among Carrier divisions.

If the machinery is not wanted within the corporation, it is sold on the outside at the best possible price.

Long Range Objectives

The purchasing staff's big job, however, is to provide direction and leadership to the divisions. "You've got to determine what the purchasing department's contribution to company or divisional profit can be," Ruediger recently told a meeting of divisional purchasing managers. "Then you've got to work toward that objective."

"Everything takes place in our divisions. If they design it right, buy right, make it right, and sell right, the corporation makes a profit.

"We here at staff are interested in helping you get the things done in the divisions the way they should be done."

Purchasing's responsibility at Carrier can be summed up in a few figures: More than 52% of the sales dollar goes for purchased products, materials and services; if purchasing had paid 1% more for what it bought in fiscal 1958, pre-tax profits would have dropped 10%, or from \$15.8 million to \$14.2 million.

REGISTRATION NO.	DATE	REQUESTED BY	APPROVED BY	CHARGE ACCOUNT
1				
TO VENDOR		CARRIER CORPORATION - SYRACUSE 1, NEW YORK		No.
		PURCHASE ORDER		DIVISION
DATE REC'D				
REMARKS				
CARRIER PART ON PAGE NO.				
TOTAL QTY. ORDERED ON THIS P.O. ON PREVIOUS SCHEDULE				
DATE	REC'D	DUE	DATE	REC'D
REMARKS				
SUBJECT TO FOLLOWING TERMS AND CONDITIONS:				
1. This schedule is issued in accordance with and subject to the terms and conditions of the purchase order issued as indicated above.				
2. The schedule shown above supersedes all previous schedules.				
3. In the event P.O. Order number is cancelled the only liability of Carrier Corporation will be limited to the items and their indicated values as listed on the most recent Supplementary Purchase Order Schedule.				
4. Shipping dates are to be rigidly observed, and any exceptions must be noted on acknowledgment copy.				
5. Do not overship. Quantities in advance of schedule without written permission will become subject to return.				
6. Be sure to check schedule details completely. Sign and return promptly acknowledgment copy.				
CARRIER CORPORATION				
BY _____ VENDOR NAME _____				
SIGNATURE _____ DATE _____				
VENDOR - RETAIN ORIGINAL - RETURN ACKNOWLEDGMENT COPY SIGNED				

Carrier blanket orders are generally issued on standard purchase order form. Divisions use supplementary purchase order schedule or release form to buy against the blanket order.

P-64 REV. 5-54 SUPPLEMENTARY PURCHASE ORDER SCHEDULE									
CARRIER CORPORATION SYRACUSE 1, NEW YORK									
DIVISION									
DATE OF THIS ORDER		P. O. QUANTITY		P. O. NUMBER		REQUIRED AT CARRIER CORPORATION			
CARRIER PART ON PAGE NO.									
TOTAL QTY. ORDERED ON THIS P.O. ON PREVIOUS SCHEDULE									
DATE	REC'D	DUE	DATE	REC'D	DUE	DATE	REC'D	DUE	DATE
REMARKS									
SUBJECT TO FOLLOWING TERMS AND CONDITIONS:									
1. This schedule is issued in accordance with and subject to the terms and conditions of the purchase order issued as indicated above.									
2. The schedule shown above supersedes all previous schedules.									
3. In the event P.O. Order number is cancelled the only liability of Carrier Corporation will be limited to the items and their indicated values as listed on the most recent Supplementary Purchase Order Schedule.									
4. Shipping dates are to be rigidly observed, and any exceptions must be noted on acknowledgment copy.									
5. Do not overship. Quantities in advance of schedule without written permission will become subject to return.									
6. Be sure to check schedule details completely. Sign and return promptly acknowledgment copy.									
CARRIER CORPORATION									
BY _____ VENDOR NAME _____									
SIGNATURE _____ DATE _____									
VENDOR - RETAIN ORIGINAL - RETURN ACKNOWLEDGMENT COPY SIGNED									

1. **REMARKS:** Must be typewritten on day of shipment to indicated division. Remarks section must be completed, together with one copy of bill of lading or express receipt and packing slip, and placed in box with purchase order number. Carrier part number and date must be included.

2. **PACKING SLIP:** Must be typed on day of shipment to Buyer. Shipping packing slip and bill of lading or express receipt are not to be mailed. Include in box with all shipment.

3. **REMARKS:** Must be typed on day of shipment to Buyer. Shipping Packing Order

4. **ACKNOWLEDGMENT OF THIS ORDER IS SUBJECT TO TERMS AND CONDITIONS AS SHOWN ON THE BACK HEREOF. THIS ORDER IS NOT VALID UNLESS SIGNED BY PURCHASING DEPT. BUYER CARRIER CORPORATION**

Divisional Buying:

A Job

For Specialists



Two members of MSD's "castings team", Homer Ritter (l.) buyer, and Wendell Erwin, foundry technician (with cigar) confer with Thomas Havill, Straightline Foundry & Machine Co., and Edward Lane (far right) of Carrier's quality control department.

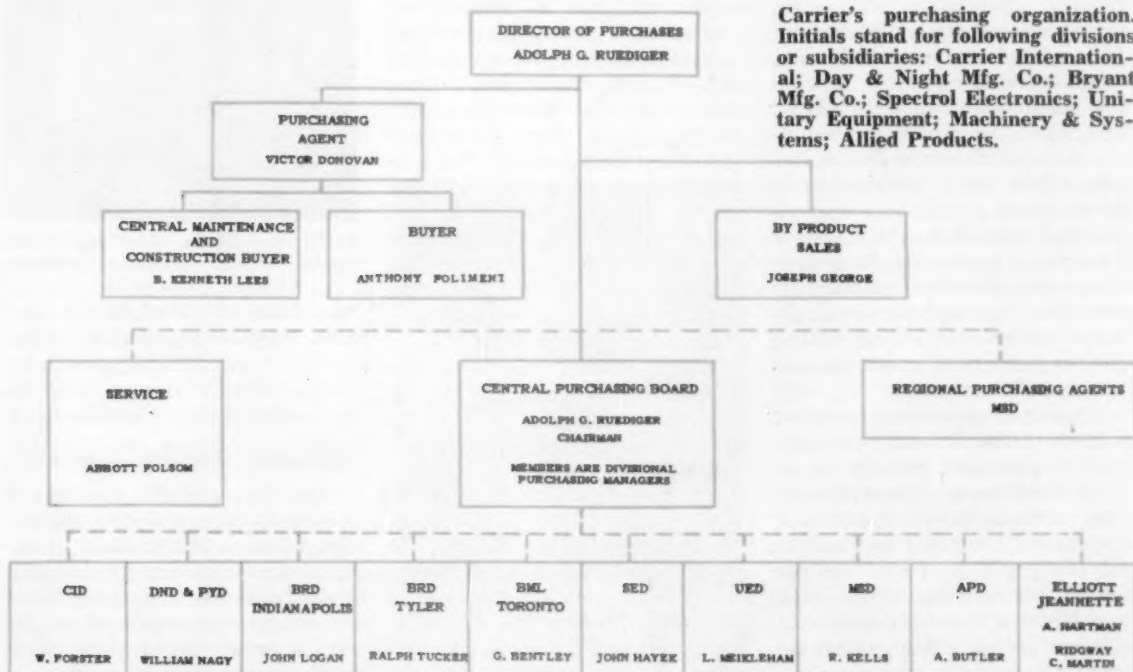
THE PRINCIPLE of decentralization is carried right down into Carrier's major divisional purchasing groups. Sections within each department have specific responsibility even to product lines. Within each section are commodity specialists.

The Machinery & Systems Division purchasing department is a

good example of this vertical type organization. It is divided into four buying groups that handle about 30,000 purchase orders and spend about \$20 million a year. A purchasing agent heads each section.

One group handles purchasing for the machinery phase of the business—all the compressors and

heat exchangers that go into the equipment room below street level in a Carrier installation. Another group buys for the systems end—all the piping and duct work and individual units for air handling located above street level. Neither section, however, buys raw materials which are handled for both by a separate section.





divisional buying:

Raw materials purchased by this section include all the steel, copper, aluminum, tin, zinc, nickel and weld rod used by the whole division.

Special M.R.O. Set-up

The fourth section—the M.R.O. group—buys maintenance, repair and operating supplies for all three manufacturing divisions in Syracuse—Machinery & Systems, Unitary Equipment, and Allied Products. The MRO group is in the Machinery & Systems Division (MSD) simply because the master crib, which supplies perishable tools, grinding wheels, etc., to the divisions, is physically located in MSD. The master crib and MRO purchasing could just as easily be part of any one of the three divisions.

The master crib system has been described by Robert Kells, purchasing manager of MSD, as "like a distributor and dealer type of organization." The main warehouse, or master crib, maintains a large inventory. Sub-cribs, like dealers, are sprinkled around the manufacturing areas in all three Syracuse manufacturing divisions, and draw on the master crib. "Here you might say we've backtracked a little into centralization," says Kells. "It's purely a matter of economics. Each division can't afford to maintain its own inventory and personnel. So we centralized. Collectively, we've got the volume to make the system an efficient entity."

Since castings account for about a tenth of the division's purchasing volume—and are one of its most troublesome commodities—they naturally get extra attention. Purchasing's unusual approach to the problem is to use a "castings team." It's made up of the castings buyer, a foundry engineering services group, and a casting expeditor.

The foundry services group consists of two technicians who have broad experience in pattern making, casting design, and foundry practice. They have a three-way responsibility: to assist engineers and draftsmen on new casting designs with their practical knowledge of what a foundry can and can't do; assist the casting buyer in selecting the right foundry; visiting and assisting supplier foundries—particularly those with production or quality problems.

A casting expeditor rounds out the team. He reports to the casting buyer—an exception to the rule, since all other expediting at Carrier is the material control department's responsibility.

Specialist on Rejections

Another unique position in the purchasing organization is that of vendor rejection coordinator. He is a manufacturing engineer with responsibility for policing faulty vendor material. He reviews all rework done on supplier material to determine whether the rework charge in Carrier's shop is reasonable. He also determines, with the buyer, how much the vendor should be backcharged. The system has paid off substantially for Carrier in two ways: it has collected a lot of money in back charges, and it has gained the confidence of suppliers by setting up a system of equitable and justifiable back charge rates.

MSD Purchasing Manager Bob Kells' runs his organization according to a philosophy that permeates Carrier's entire purchasing organization. He recently told a corporation purchasing conference:

"We firmly believe that 75% of the money to be saved in material is in the product engineering department before the design is completed and the materials specified. We lean heavily in this di-

rection to work with the engineers and give them all the help we can with suggestions or services they need.

"Buyers must know what new designs are coming up and what the engineers are thinking about. This is the golden area—at the thinking stage—when the first lines of the rough layout go on the tracing paper.

"Our buyers must offer their



Leslie Meikleham, chief purchasing agent, Unitary Equipment Division.

knowledge of materials and markets. They should offer to do the contact work and the legwork for the engineers when new materials or sources of supply are involved.

Question, Question, Question

"Our job—and this is a matter of policy—is to question the design, question the material, question the requisitioning source. We must question anything and everything that we think might offer a better way to buy it, or build it, and save money."

Key to Value: Challenge Tradition

HOW FAR should a buyer go to find out if a price is right?

Just as far as his responsibility to his company requires, according to Bob Kells, purchasing manager, Machinery & Systems Division. Speaking of some of the methods used in Carrier's cost reduction efforts, Kells says:

"Buying with the stress on cost reduction doesn't make suppliers jump for joy. Nor does it help the purchasing agent win votes in a popularity contest. Some vendors have been a little taken back at times, but after the dust settles, they begin to realize that the approach makes sense. Sure, it's hard buying, but that's the business we're in purchasing. And don't forget, performance is measured by what ends up at the bottom of the P&L statement. We have the reputation of being hard buyers—but fair buyers!"

Challenging price is, of course, only one aspect of Carrier purchasing's search for value. Purchasing has nailed down impressive cost reductions by taking the initiative in design and specification changes, substitutions in material, and use of vendor engineering assistance. Following are some typical experiences in each area.

Challenging Prices

Buyers are expected to look at two important elements in a selling price — manufacturing cost (material, labor, and labor burden), and overhead and profit. The low bid on a job is not always the right price. The buyer's job is to find out what is the right price — including a fair profit. "If a supplier isn't making

a fair profit," as Kells says, "he isn't a good supplier."

On a big rush job, Carrier found it necessary to subcontract some machining of large shafts. The job was given to the low bidder, despite a feeling that the price was on the high side.

When an additional order came in later, Carrier had a chance to study the price a little more thoroughly. Analysis showed that while the vendor's lathe was adequate for the job, a more modern machine with a tracer attachment would be even better. The work was a straight turning job on a long run production item, repetitive in nature.

On its own, purchasing sent a part drawing and total requirement figures to two lathe manufacturers and asked them to submit quotations on machines they would recommend for the job. They did and gave complete

processing times. Meanwhile, purchasing had worked up process sheets for other operations, including grinding, raw material prices, local labor rates, burden, and a fair profit were estimated.

When it came time to negotiate a new contract, purchasing showed the supplier all its figures, how it arrived at them, and what it considered a fair price—which was near \$100 less than what it was paying. Purchasing then recommended that the supplier buy the new lathe just for the Carrier job.

He did. The efficiency of the new machine enabled him to lower his price by \$83 and Carrier saved a healthy sum. The supplier paid for the machine in the life of the contract—one year—and still made a fair profit on the job.

Even on single source items—where the supplier seems immune to competition — Carrier still wants to know whether it is getting the right price. Purchasing went to work on an assembly for a critical application that only one supplier could design. It took a unit out of inventory and tore it down piece by piece. It came up with some estimates on the motor, got its casting technicians to estimate pattern cost, and added miscellaneous material figures. Then it went to the estimating group in manufacturing engineering and asked them to price the job for machining, assembly and test. Adding up the figures, purchasing arrived at a selling price. The actual price was within 2% of the estimate—so Carrier knew where it stood, and knew that the price was right.



Bob Kells, who came to purchasing through engineering, is purchasing manager of the Machinery & Supply Division.



key to value:

"Challenge tradition" is a cost-reduction slogan in Carrier purchasing. "We're not supposed to be design engineers," says Kells, "nor are we trying to do engineering's job. But we can't expect engineering to know about a lot of things that we specialize in, like materials, new processes and supplier services. It's the integration of the two groups that makes the winning combination."

Some examples:

A certain type of gasketing material, available from only one approved source, was being used on water box applications. The buyer questioned why other materials were not approved. He discussed the problem with suppliers and

Carrier's engineers and material test group. He brought in material samples for test and finally got the specification changed. There are now four additional sources and the price per pound has dropped by over 33%. Carrier is saving \$5000 a year on that item.

The rotor drive assembly of a special axial compressor consists of a hub forging, drive disc, and 12 steel plate gussets—all welded as an assembly. The buyer, after careful study of the assembly, came up with the idea of using a one-piece forging instead of a 14-piece weldment. While engineering was giving the idea further study, the buyer had a forge shop

make up a sample, which was tested and found suitable. The switch was made, and in less than two years the saving ran well into the six-figure bracket.

Letting the supplier tell you the best quality for an application will prevent over-specifying and save you money. Carrier had been using a number of galvanized and galvanized sheets specified as drawing quality material. This was challenged by the raw material buyer. His studies showed that all the zinc-coated sheet could be ordered as commercial quality. Commercial quality will stand moderate forming—as the steel mill people would have been able to point out, if asked. Carrier had been paying for something it didn't need. The change saves the company \$8,300 annually.

It's a cardinal principle in Carrier purchasing to seek engineering help and guidance. The first place to look for it is within the company, and purchasing-en-

How to Get Cost Reductions

Cost reduction ideas will never just walk up to a P.A. and ask to be adopted, according to Bob Kells of The Machinery & Supply Division. You've got to go out and look for them, he says, by questioning requisi-

tions, and challenging old ways of doing things. What's needed is creative skepticism. Here are just a few challenging ideas he gave P.A.'s and buyers to chew on at Carrier's last purchasing conference:

(1) Challenge the tolerance—the closer the limits the greater the cost. Does it have to be $\pm .0005$ or is .005 okay?

(2) How about the 16 micro inch finish? If it has to be 16, fine—but maybe it could be changed to a 32 or 64.

(3) Does the piece really have to be machined on the OD? The drawing calls for it, but a look at the application shows that no fit up is involved, the appearance is not objectionable, so wouldn't a burred edge be acceptable?

(4) Challenge the material. We assume, for example, that the casting specifies steel because of strength requirements, but how about ductile iron? It isn't quite up to the physicals of steel, but it has many of the desirable properties and costs 30% less.

(5) If, on the other hand, the specifications call for gray iron, and we know of a lot of porosity problems that we have been having, then perhaps a centrifugal casting is the answer. Challenge it.

(6) Is the material too heavy? Just because we always used $\frac{5}{8}$ studs in a bolt circle doesn't mean that is what we should be using now. High strength bolts in a smaller diameter might be the answer. Question it.

(7) Maybe the sheet steel needed is specified in gage. If it is not a critical draw operation or if there is no die tolerance problem, then couldn't we order the steel to the low side of the gage limits and get more steel mileage in pieces per ton?

Item No.	Part Number and Description	Order No. and Vendor	How Savings Were Effected or Reason For Price Increase	Former Cost	Present Cost	Savings or (Increase) This Order	Est. Yrly Savings or (Increase)	Est. Savings or (Increase) Balance of Fiscal Year
1	19C47-2411 Idler Pulley	28-115,947 National Molded Prod.	Substitution of material.	2.14 ea.	.42 ea.		12,040.00	
2	19C37-3442 Shaft Cap	28-113,408 Hy-Grade Metal	Material change approved by Engineering.	7.60 ea.	4.00 ea.		1,620.00	
3	KM11AC-360 Thermometer	28-104,307 Manning, Max & Moore	Suggested changes in specs. approved by Engineering Dept.	19.04 ea.	16.30 ea.	blanket	1,096.00	137.00
4	KM11AC-365 Thermometer	28-104,224 Manning, Max & Moore	Ditto	22.89 ea.	14.40 ea.	blanket	3,396.00	424.50
5	16B7-5603 Cooling Coil	28-112,224	Change of vendors brought about by shopping.	13.50 ea.	10.33 ea.	1,485.00	1,485.00	1,220.00
6	19C47-2562 Special Stud		Change of vendors brought about by shopping.	7.03 ea.	1.37 ea.	8,998.00	8,998.00	3,750.00

A typical divisional savings report. Copies also go to staff purchasing. Staff will publicize those cases that might interest other divisions.

gineering relationships in Carrier are notable for their harmony and successful results. But purchasing also goes outside for engineering help—with considerable success.

MSD purchasing, for example, looked for more technical help on castings, even though it has a team of experts that work on that item full time. It particularly wanted assistance on casting design at the drawing board stage. Purchasing proposed retaining a casting consulting group that would work with the department's

castings team.

The first step was to get all product engineering managers behind the idea. Without their support and the full cooperation of their engineers and draftsmen, the move would have been pointless. They backed the plan, and a Boston group was brought in and concentrated its efforts in the engineering departments on design, foundry practice, and metallurgical assistance. What they accomplished is summed up in Kells' comment: "Their consult-

ing fee looks pretty small next to the plus side of the ledger."

Carrier also regularly taps the wealth of technical knowledge and advice available from suppliers. When requests for quotations went out recently on a float valve that had been bought for years, purchasing sent along, as usual, a drawing and specifications. But it also asked the vendors to submit two quotations—one on the original valve and a second one on another valve they could design and produce that would be less costly and still meet specifications. The suppliers got the message. Each bidder came in with a lower cost alternate and purchasing got an okay from engineering. The new price is 21% lower than the old, Carrier saves \$4100 a year.

Last year purchasing asked a fastener company to come in and study all fastener requirements by product line and make recommendations for cutting costs. For three days a company specialist, teamed with the fastener buyer and the engineer for each product, went over every nut, bolt and stud, by product, right on the production line. The specialist gave purchasing a complete written report and recommendations. The project cost Carrier nothing but the buyer's and engineers' time, may save them over \$15,000 a year as suggested changes are made.



P. A. Les Meikleham (l.) and Buyer Don Barfoot (r.) discuss cost reduction possibilities in MRO standardization with B. W. Smith, Case Industrial Supply Co.

What Engineering Wants From Purchasing

MORE THAN three-quarters of the product cost in Carrier's Unitary Equipment Division is material specified by engineering and bought by purchasing. Of the total material cost of the division's composite product, nearly half is made up of purchased components, as opposed to commodities such as raw materials, fasteners, etc.

"It doesn't take much reflection on those figures to conclude where effort should be applied to reduce our product cost," W. L. McGrath, of UED's development engineering department, recently told a group of Carrier purchasing agents. "The responsibility rests squarely on the backs of purchasing and engineering people. We must work together. Engineering must expect the most from purchasing, and purchasing should expect the most from us."

What engineers expect from purchasing—and are getting at Carrier—is a far cry from what they expected only a few years ago. Then engineering wanted quick service, a free hand to select vendors, and no back talk from the purchasing department. Today, this is how the two departments can work together, according to Mr. McGrath:

Primary Responsibilities—Engineering expects purchasing to suggest slight changes in specifications to permit use of standard sizes, shapes, lengths or grades of material and to get lower costs without cutting quality. Purchasing should advise engineering if a specification change or substitution would lower costs.

Once the product is released to production, both departments must keep up the pressure for

cost reduction. Engineering wants purchasing to call attention to new products, substitutes, or unfavorable drifting of prices on parts or materials previously specified. The design or selection that might have been sound two years ago could be very much out of place today.

Alternate Sources—That purchasing should try always to have alternate sources for all items is obvious. But sometimes this is very difficult. To have alternate sources for some components (expansion valves or hermetic motors, for example) might not make sense. Costly testing programs would be necessary to determine suitability.

Qualifying Vendors—Engineering has no particular interest in the selection of vendors for gen-

Studying possible changes in components of a centrifugal refrigeration unit are (l. to r.) Henry Van Atta, drafting superintendent; Tony Prazek, buyer; Fred Jurgensen, designer; Vic Pooler, purchasing agent, machinery department; and Larry MacCrow, chief engineer, all of MSD.



eral commodities — steel, tubing, etc. But when it comes to components, special-property materials, or custom-fabricated parts, engineering must get involved. And it will look to purchasing for help in making the qualification. Purchasing can help engineering judge the quality of a vendor—what kind of sales or technical assistance he can render; his policies on escalation; his attitudes and performance in respect to service difficulties; the respect he shows for the confidential status of projects he gets involved in; his reputation for quality and consistency of product.

Cost Engineering — UED has several engineers working exclusively on cost estimating, cost analysis and cost reduction. They work very closely with purchasing on trying to keep material cost down. McGrath feels the engineers can be of substantial service to purchasing by providing data as to reasonable cost expectancy on new components. They can also establish norms, such as expected costs per square foot or per pound. This would help purchasing in its efforts to analyze quotations.

Standardization — Purchasing can make a real contribution to engineering by constant suggestions on standardization of materials, fasteners, etc. "The fact that a part can be found in a standard parts book does not necessarily mean that sufficient standardization is being obtained in stores," says McGrath. "Purchasing has made a constructive move in our division by making a periodic runoff of the usage of fasteners and other parts. This runoff is furnished to our drafting room, so that when a selection is made we consult both the standard parts book and the usage runoff. As a result, we wind up with fewer items in stock — which means lower inventory costs, more flexibility, and better availability.

Locating Sources — That purchasing should go all out in co-operating with engineering to find sources for special requirements

Why Engineers and P.A.'s Get Along

The good relations between Carrier purchasing and engineering are reflected in the ground rules developed by engineering. All new engineers are asked to follow them in contacts with suppliers and with the purchasing division.

- The purchasing department should be informed of correspondence with vendors. This means that copies of any such correspondence should go to purchasing. And when correspondence is received from vendors, either the original or a copy should be given to purchasing.

- The engineer should call in a purchasing representative whenever an important discussion is to be held with a vendor, even though it relates to some future design.

- It is essential that no engineer advise any vendor directly relative to changes of prices or specifications on current production models. Any negotiations with or advice to vendors on production products must be handled by the purchasing department.

- No engineer should take it upon himself to change any existing purchase order either by verbal or written instructions to a vendor. Correspondence concerning any existing purchase orders must be handled by purchasing. Any necessary technical transmissions should be done only with the agreement of purchasing, with copies to the appropriate buyers.

- Any discussions that lead to prices being mentioned should have written confirmation (a copy of which should go to purchasing), or a record of the conversation should be made by the engineer and furnished to purchasing.

- It is necessary that the engineer talk tentative price and cost in conversations with vendors in connection with new products and in the process of selecting and qualifying components or parts. If the engineer is to be cost conscious, this is definitely part of his job.

- Confidential information or quotations provided by one vendor should not be passed along to another and the confidential disclosure of new developments on the part of the vendor should be respected.

- It is essential in conversations with vendors that the engineers make it perfectly clear that they do not make the decision to buy and that the purchasing department is completely responsible for such a decision.

- A close working relationship between purchasing and engineering will pay off in better products and lower costs.

goes almost without saying. One move that would make for more efficiency would be the establishment of a common catalog file, in place of individual files for engineers and buyers.

Make-or-Buy — Purchasing should get involved in discussions of make-or-buy. It can evaluate

prices and an opinion on the vendor's profit margin. Purchasing should constantly consider purchased parts in the light of whether it would be better to fabricate them in the plant, or purchase them. When profit margins on a given item seem excessive, it is time for purchasing to recommend making. ► END



General view of Barber-Colman lobby. Salesmen have been announced and are waiting for interviews.

Vendors Get Good Reception

Visitors to Barber-Colman receive a warm welcome, prompt service, and enjoy excellent facilities. Sentiment has nothing to do with it. B-C needs their help and their new ideas, feels a little attention helps maintain its reputation as a good company to do business with.

STEP INTO Barber-Colman Company's lobby in Rockford, Ill. any morning and you'll find the place alive with salesmen. And off to the side you'll probably see more of them talking with buyers and engineers in purchasing's four conference rooms.

All this activity means only one thing: the vendor is extremely important to Barber-Colman. In 15 years the company has tripled in size and greatly broadened its present lines. It now makes precision products in at least a dozen classifications, including textile

machinery, machine tools, instruments, electrical components and a wide variety of controls. Purchasing buys thousands of items in relatively small lots.

"When you're making that many products you need vendors as much as they need you," says Director of Purchases Dave Farquhar. "We need their ideas and their imagination to help improve complicated, technical products. We've got to maintain friendly, personal contact with them to be sure of good service and follow-up. (The department of 12 people

issues about 45,000 purchase orders a year). There are very few things we buy that can be ordered in large amounts and then reordered more or less automatically.

"We have to make sure our buyers coordinate closely with our engineers and suppliers. And we have to do everything we can to encourage vendors and get them to look on Barber-Colman as a good company to do business with."

This is how Barber-Colman's purchasing department does it:

—**There are no visiting hours.** Supplier representatives may call anytime during any business day.

—**Visitors are given immediate, careful attention.** The company receptionists are members of the purchasing department. They have been with the department several years and have been specially trained to direct salesmen

to the proper buyers. This prevents confusion and time wasting that might be caused by the number and complexity of items Barber-Colman buys. Calls to buyers are followed up every few minutes by the receptionist, and salesmen are kept informed if an interview must be delayed.

—It's company policy that all vendors go through purchasing first. The policy makes sense. Farquhar demands that his buyers be completely familiar with the applications of the products they buy. The buyers know who in engineering or production should be called in when new products are offered or when problems on current buys arise. No time is wasted in misdirected calls or pointless conversations. "I rate ability to handle vendors properly and link their efforts to those of our engineers as one of the marks of a good buyer," Farquhar says.

—Vendors are asked to help keep the company catalog file up to date whether or not they can do business immediately with Barber-Colman. The file is part of the purchasing department library. Catalogs may be checked out of the library by authorized personnel from other departments interested in using them.

—Visiting and meeting facilities are designed for comfort and efficiency. Barber-Colman products are prominently displayed in the spacious, well-furnished reception room. The purchasing department is directly to the right of the room. Conference rooms are situated directly to the left.

"I've been on both sides of the desk," says Farquhar, who spent several years in sales. "As a purchasing man, I know that you are missing a bet if you're not attracting good, responsible vendors to do business with you. We wouldn't be where we are without plenty of competent vendors. As a former salesman, I know that a man calling on a company wants to be treated with courtesy and common sense. He'll give more of himself and his company when he knows the people he calls on welcome and respect him. Our vendor policy is built on those ideas, and it's working wonderfully for us." ► END



As soon as a salesman is signed in, Barber-Colman's receptionist announces him to a buyer. Doors to the right lead to purchasing conference rooms.



Typical conference room will hold six people comfortably. Doors may be closed for privacy.



All vendors, potential or actual, are asked to supply catalogs to purchasing library. Here a catalog is being checked out by a member of the engineering department.



P. A. John H. Corcoran:
"Unless you have a testing
program you never really
know what you're buying."

Buying Quality: City Style

Clear specifications and an organized testing program assure Cambridge, Mass., that it is getting what it is paying for.

By John Van de Water, Technical Editor

"THE FUNDAMENTAL of purchasing is a sound specification," asserts John H. Corcoran, purchasing agent for the City of Cambridge, Mass. Starting with this ground rule, he has developed a buying program that rests not only on impartial specifications, but on a testing system that makes sure they are met.

It is not uncommon for a public agency to buy according to detailed specifications. The federal government does so regularly. But Cambridge is unusual because its delivered materials are regularly tested by independent laboratories. Most cities do not have testing programs of any kind.

"Unless you have a testing program," says Corcoran, "product quality is likely to be erratic. You would never be sure of what you were buying."

What does this approach to municipal purchasing achieve?

- It assures the city and its tax-

payers of getting what they pay for.

- It assures the city that materials purchased are of the quality suited for the application.

- It allows the city purchasing department to use a wide range of bidders since quality is assured by the testing program.

- It establishes a purchasing program that is fair both to suppliers and users.

- It eliminates the waste resulting from poor or wrong quality.

- It avoids personal and political problems.

With the help of an assistant and four buyers, Corcoran buys materials for most city departments. Major items include food, stationery, building materials, and hospital supplies. Some items, such as classroom furniture for a new school, are bought for specific projects. Others, such as fuel, are bought on term contracts and delivered as needed to the city

hall, hospitals, schools, or public buildings.

When the Cambridge purchasing department prepares a bid invitation, besides stating quantity and describing the material, it refers to a specification. This may be:

- a standard federal specification;
- a federal specification modified to meet the city's needs;
- a city specification prepared for the purpose.

Corcoran started setting up these specifications over ten years ago. He now uses them for all major purchases, such as paints, foods, textiles, paper, fuels, office supplies, etc.

Got Expert Help

"We didn't set up these specifications all by ourselves," explains Corcoran. "We got the help of experienced technical people, such as engineers employed by the city or from local colleges.

Or we hired someone to do the job. Our food specifications were set up with the help of the U.S. Department of Agriculture. Textile specs were determined after consultation with vendors and our users."

Corcoran tries to use federal government specifications as much as possible. "We would be foolish," he says, "to try and write our own, when so many excellent specifications are available." He has found that, in general, federal specifications describe materials of high quality. In those cases where specifications exist for different grades of materials it becomes only a matter of selecting the proper grade for the desired quality.

Occasionally the city has amended federal specifications to obtain a quality more suited to its needs. On finish paints for instance, hiding quality was improved a few percent by making the manufacturer use more pigment. Naturally, this raised the cost of the paint. But meant a definite saving in labor. In borderline cases, for example, it may mean using one coat of paint instead of two, or two instead of three.

Similarly, the required drying time of traffic paint was decreased from the 40 minutes required by the federal government, to 25 minutes. In city traffic, a condition not met by federal agencies, 40 minutes is just too long.

Has No Brand Preference

Government specifications are not available for all products. In those cases Corcoran prepares his own or resorts to brand names. "We try to stay away from description by brand name alone," he asserts. "If we must use it, we state that the brand name is used to describe quality and not preference." When no detailed specification exists, as with furniture, Corcoran compares samples.

The Cambridge testing program was developed along with the specifications. "We instituted widespread testing," continued Corcoran, "to make certain we get the quality specified."

Ideally, testing should be done before material leaves the ven-

GENERAL INFORMATION AND INSTRUCTIONS	
TAXES:	The City of Cambridge is exempt from the payment of Federal excise taxes and such taxes must not be included in this bid. The City will provide the successful bidder with a properly executed tax exemption certificate.
LAWS:	Delivery shall conform in every respect with all applicable laws of the Federal Government and/or the Commonwealth of Massachusetts and/or the City of Cambridge.
BID PRICES:	Prices quoted shall include transportation and delivery charges fully prepaid to the Public Works Department, Hampshire Street, Cambridge, Mass.
DELIVERY:	The City of Cambridge will accept delivery of the various items listed on the attached proposal form on a single drop delivery basis.
METHOD OF AWARD:	Awards are to be made on an "item by item" basis.
TESTING:	The City intends to test all paints for conformance with specifications. The charge for this testing will be borne by the City if the result of such tests shows that the paint conforms to the specifications. If the paint fails to conform to the specifications, the charge for testing must be borne by the supplier.
NAME OF BIDDER: _____	
SIGNATURE OF BIDDER: _____	
TITLE: _____	
ADDRESS: _____	
Please check one of the following:	
<input type="checkbox"/> Corporation, incorporated under laws of the State of _____	
<input type="checkbox"/> Partnership, names of partners _____	
<input type="checkbox"/> Individual, name and address of owner _____	

The first page of the bid invitation clearly states that all material will be tested.

dor's plant or warehouse. And that's just what Corcoran does with the food he buys for Cambridge hospitals. Every pound of fresh meat and vegetables is inspected by an expert from the U.S. Department of Agriculture as it is being packed for city orders. After the package is sealed and marked it is stamped by the inspector. Canned and packaged groceries are spot-checked by

U.S.D.A. inspectors.

As the agriculture department was the guiding authority in preparing food specifications, it is operating as quality control for Corcoran's food purchases. This gives him the chance to use as many suppliers as possible and still be assured of quality. Perishables are bought on weekly bids, packaged foods on four-month firm-price contracts.

SPECIFICATIONS			
<u>ITEM ONE: MISCELLANEOUS PAINTS</u>			
All paint as described in this item will be awarded to one supplier.			
<u>Important amendment to Federal Paint Specifications:</u>			
The City of Cambridge desires very high quality paint which is in conformance with the Federal Specifications listed below, except that the minimum hiding power of some of these specifications has been determined to be entirely inadequate for our requirements. For this reason the dry opacity as reflected in dry film contrast ratios must be changed to the figures shown below. All other requirements of these specifications must be strictly adhered to.			
Below are listed the present dry film contrast ratios of the specifications and the dry film contrast ratios required by the City of Cambridge. While these figures apply to white only, tinted paints must naturally have an even higher opacity, as all tinted paints must be made from white paints having first met the below listed adjusted dry opacity.			
Type of tint	Federal Specification	Present Ratio	City's Req. ratio
Interior Flat	TT-F-51b	.91	.98
Interior Semi-Gloss	TT-B-50b	.92	.98
Interior Gloss	TT-B-50c	.92	.98
The film thickness for these opacity levels will be as required in the pertinent specifications.			
A. 600 gallons, in one gallon cans, paint, oil, interior, non-penetrating flat, white, conforming to Federal Specification TT-F-47a.			
B. 300 gallons, in one gallon cans, paint, oil, interior, flat, wall, white, must conform to Federal Specification TT-F-51b and amendments thereto. (See important amendment to Federal Specification above).			

When the city wishes to amend a federal specification the changes are carefully defined.



Making an on-the-spot inspection of the Skinner & Sherman Co., Inc., testing laboratories, P.A. Corcoran gets filled in on specific testing techniques by one of the lab technicians.

By having food inspected at the source, Corcoran has eliminated problems of returns, disposition of extra costs, unintentional usage, and the extra paperwork that would go with it. When the testing program was first established food rejections ran as high as 40%. Today, vendors are more familiar with the city's requirements and as a result only one or two lots are rejected in a year.

Textiles, such as sheets, pillow cases, and towelings, are tested for the city by the Lowell Technological Institute. Other products are tested by commercial laboratories. Samples are selected at random from each shipment. When materials are shipped to different points, the sampling point is changed regularly to avoid setting a pattern.

No Samples Ordered

Corcoran does not believe in ordering test samples or test runs. "The samples might be excellent," he explains, "but this would not guarantee the quality of the main lot." With the present system there can be no doubt about quality.

Once a vendor accepts an order based on a certain specification it is his responsibility to meet it. The city pays for testing as long as the material meets the specification. If it does not, the vendor must expect to bear the test cost as well as have the shipment rejected. To avoid uncertainty about the acceptability of their products some vendors have material tested by the designated laboratory prior

to delivery. They are then able to furnish a quality certification to the city.

The cost of the program cannot be assessed accurately as many of the charges are hidden or borne by the vendor. Corcoran has no doubt, however, that it is small compared to the cost of the materials purchased. "I do know," he asserts, "that we are not spending enough for testing. The program should be expanded." And he is doing just that. Now that specifications have been drawn up for the important materials the city buys, purchasing is beginning to look at some of the smaller items, such as paper towels and soap.

The Cambridge program would be ineffective if the number of bidders were limited. The city purchasing department is required by law to advertise all bids in a local newspaper. This procedure alone, however, cannot assure a wide response or a dependable cross section of the market. In addition, Corcoran notifies contract services, such as Dodge Reports, of all bid openings. He also sends inquiries to many additional suppliers, both local and out of town. "A purchasing agent is never satisfied that he has enough bidders," Corcoran says.

To simplify bidding and help assure an adequate return, purchasing uses a fill-in type of bid invitation. All materials are fully described in the bid form itself. The bidder has only to fill in his prices and terms, and certify that he is quoting in accordance with the specifications.

Corcoran favors notifying all bidders of the bid results. At one time he went so far as to send out a tabulation showing all bidders and the prices quoted by each. This procedure proved too cumbersome and time-consuming, however, and Corcoran reluctantly had to give it up. Now, the name of the successful bidder and the prices quoted are available to anyone who wants them. ► END

CITY OF CAMBRIDGE PURCHASING DEPARTMENT		FILE NO. 485	
TO: John E. Corcoran, Purchasing Agent City Hall, Cambridge, Mass.			
TUESDAY, NOVEMBER 3, 1959			
The undersigned hereby proposes to furnish and deliver to the Purchasing Department Storeroom, City Hall, Cambridge, Mass., FIRE PAPER in accordance with the following specifications and schedule.			
Awards are to be made on an "item by item" basis. Please note alternate bid which provides for the delivery of all, or any combination of the paper as hereinafter described			
QUAN.	UNIT	DESCRIPTION	PROPOSAL PRICE UNIT TOTAL
ITEM ONE: CHEMICAL WOOD BOND PAPER			
Specification: Paper, Chemical Wood Bond, Type IV, White and Colored, as per Federal Specification UU-P-121f, and all subsequent amendments thereto.			
400	reams	Chemical Wood Bond Paper, Type IV, 8 1/2 x 11	\$ _____ \$ _____
12	"	16 lbs., White	_____
36	"	Ditto - 19 x 24, 16 lbs., White	_____
6	"	Ditto - 17 x 28, 20 lbs., White	_____
120	"	Ditto - 17 x 22, 20 lbs., White	_____
12	"	Ditto - 8 1/2 x 11, 16 lbs., Canary	_____
30	"	Ditto - 19 x 24, 16 lbs., Canary	_____
	"	Ditto - 8 1/2 x 11, 16 lbs., Pink	_____
TERMS:		FOB DELIVERED SINGLE DROP SHIPMENT	TOTAL ITEM ONE . . . \$ _____
ITEM TWO: PAPER, BOND, 25% BAO			

The bid page gives full description, quantities, and the applicable specification. Vendor fills prices in spaces provided.

Results of a value analysis program: The two rolls of foil on the desk both weigh 21.5 lbs., but the aluminum foil roll on the right contains enough stock for 5950 more packages of cigarettes than the tin-lead foil which was previously used. Comparing the two rolls are: George H. Transou, purchasing agent for R. J. Reynolds Tobacco Co., and author John Hibbits, sales manager for Archer Aluminum, a division of R. J. Reynolds.



Value Analysis Is a Continuing Job

In one form or another, the R. J. Reynolds Tobacco Co. has been working on the same VA project for 32 years. This never-give-up approach has paid off handsomely.

By John J. Hibbits

THIS IS THE STORY of a value analysis program that may be one of the longest on record. It began in the Twenties and we're still working on it. The problem: To package cigarettes in a moisture barrier material that would do the job at low cost and be acceptable to the consumer.

The idea of tackling this problem with a value analysis approach came from purchasing and it has been purchasing which has inspired and guided the program throughout the years. Naturally the assistance and cooperation of other departments was essential in making the program work.

Our long-term value analysis

Mr. Hibbits is sales manager for Archer Aluminum Co., a division of R. J. Reynolds Tobacco Co.

project started in 1928 when we made a "make" rather than a "buy" decision. At that time the R. J. Reynolds Tobacco Company bought the Tobacco Foil Company of Richmond, Va., and moved equipment and personnel to Winston-Salem, N.C.

Cigarette foil produced at that time consisted of 96% lead and 4% tin. It was made like this:

Both lead and tin were bought in pig form and cast into slabs—the lead approximately one inch thick, about 22 inches wide, and 36 inches long. The tin was brought down to about 1/64" thick and twice the length of the lead slab—or about 72 inches long. The tin was then laid down, the lead placed on it, and the tin lapped back over the lead sand-

wiching it between the tin, top and bottom. All of this work was done by hand.

This composition slab was then rolled in four passes in the breakdown mill, and formed into a coil about 15 thousandths thick, approximately 500-600 yards long, and about 150 pounds in weight. The coil was then fed into a finishing mill and rolled to a thickness of 6 ten thousandths. This finished product had a yield of 4500 square inches per pound. The composition foil was then glue-line-laminated to paper stock to yield 3350 square inches per pound.

We have no reliable figures to show how much we saved from our make instead of buy decision, but we do know that it cut costs

considerably. Even more important, the stage was set for the really significant analysis to come.

A constant search was carried on to produce this material more economically. The amount of tin (which was, of course, the higher priced commodity) was reduced to the point where the final product fell apart. When this limit was known, the tin-lead composition was maintained just inside that extreme—approximately 1% tin to 99% lead. Work on gauge reduction was fruitless.

We then began looking for substitutes. Zinc seemed a possibility but it corroded too fast and needed to be lacquered. Aluminum looked good, but was too expensive. However, by the mid thirties, aluminum was a stand-off on cost, and by 1938, it was less expensive than the composition lead-tin foil we were using.

As a result, we put in aluminum rolling equipment and by Dec. 1941 were ready to roll our first aluminum foil for cigarette packaging. The Japanese, however, in one day's work, put our efforts to a complete halt for five years.

Our new aluminum rolling facilities were used during World War II to manufacture anti-radar foil produced under various government contracts. This war caused delay was not all hardship, however. We gained invaluable experience in aluminum foil rolling techniques which were put to immediate use when restrictions were lifted. By 1946 we were rolling foil for cigarettes.

Saved One Cent in 10 Years

You may be wondering whether all this value analysis saved any money? Well, here are the figures:

In 1940 the tin-lead composition foil produced in our plant cost \$24.56 per million cigarettes. By 1951, our aluminum foil was costing \$24.55. A one-cent per million cigarettes savings—one cent after ten years. One cent after capital expenditures in seven figures for equipment.

Naturally, there's more to it than that. What with rising costs and inflation, had we still been using tin-lead foil in 1951, we would have had to pay approxi-

mately \$5 million extra per year. In addition, there was an extra bonus of the profit which we would have to pay if someone else were rolling our foil.

Besides these savings on our barrier material, we also benefited in other ways from the switch from tin-lead to aluminum foil:

(1) Better product from the standpoint of consumer appeal—A cleaner looking—bright, shiny product.

(2) Improved wearability—it will withstand more handling in the package.

(3) More efficient operation on our cigarette machines—allowing faster machine operation—more dollars saved.

(4) Lighter Weight—which has meant considerable freight savings. And if you don't consider this particularly significant, consider the fact a 21½ pound aluminum foil roll contains enough stock for 5950 more packages of cigarettes than a lead foil roll weighing the same amount.

Another interesting fact: the stock we now use for packaging the same size cigarette is 3/16" narrower than the old lead foil.

(5) The switch to a domestic product instead of a foreign one (pig tin) which was in short supply—allowed us to lower inventory investment, and gave us better continuity of supply at more stable prices.

(6) Aluminum foil lends itself to automation, and can be han-

dled more easily than composition foil.

(7) Aluminum foil kept our product modern and competitive.

As I mentioned earlier, when our old composition foil was laminated to backing paper, the finished stock yielded approximately 3350 square inches per pound. About two years ago the yield was running about 9190 square inches per pound. That in itself is just about a 275% increase over our original material. However, we were still not satisfied and so the value analysis program continued.

Yield Increases

We determined that by revising our tolerance specifications for the weight of our paper, and with no substantial difference in cost, we could increase our paper yield considerably. By careful quality control of incoming paper shipments, we increased the yield of our laminated foil stock 9.2%. Naturally, this saved money, but even more important, the revised specifications and control resulted in greater product uniformity.

We have also looked into the possibility of using substitutes for foil—poly-coated paper for example. But we were stopped by that final value analysis authority—the consumer. He wants foil, and if he wants foil, that's what we use.

By following a planned value analysis program we have kept our plant and equipment up to date. We have tried not to allow rationalizations on "written-off" equipment to dull our vision on studies of modern machinery.

In 1956, when it became apparent that new equipment could save us more money, our original mills were relegated a secondary position and plans for new, wide rolling mills were drawn up. That's how Archer Aluminum came into being.

These years of enlightened study of one of our packaging materials has brought about another important step in our overall program. The new plant we have just completed was built to include not only foil laminating machines, but printing and cutting

(Please turn to page 148)



"A little something inside of me dies, every time a buyer refers to our new, high tensile strength, polypropylene, close tolerance, corrosion-free, thoxotramic, impact extrusions, as 'junk'!"

Buying on Approval: Who Takes the Risk?

When goods are bought on approval or on trial, possession may not mean ownership. Contract terms determine when title passes to the buyer. Until it does, loss or damage is the seller's risk.

By Albert Woodruff Gray, Legal Editor

DELIVERY of material does not always mean that a purchase or sales contract is automatically completed. Acceptance becomes conditional when a sale depends, for instance, upon approval of the material by the buyer or requires that certain services be performed by the seller. In such instances, although delivery has been made, execution of the contract is not complete until the condition is fulfilled.

The U.S. Supreme Court stated this principle as long ago as 1874 in reviewing a Civil War case. It declared:

"Where the buyer is by the contract bound to do anything as a consideration, either precedent or current, on which the passing of the property depends, the property will not pass until the condition be fulfilled, even though the goods may have been actually delivered into the possession of the buyer."

Distinction between such a sale, in which ownership is retained by the seller, and a so-called "sale or return," was set out by a West Virginia court in the sale of a harvesting machine.

Sale or return

This controversy involved the distinction between a claim by a purchaser that the sale of the harvester was on approval and the contention of the seller that it was a "sale or return." "If it is a sale on trial," said that court, "it is said to be a sale on condition precedent, to buy if satisfied; that is, the title does not pass until the condition prescribed is fully

performed, although possession is delivered.

"If it is a 'sale or return' it is said to be a sale on condition subsequent; that is, the title passes with the possession but to be divested if the condition is not performed and the property returned."

"It is obvious," continued the court, "that one may take a chattel on the understanding that he is to try it before the purchase shall take full effect; or again, upon a complete present bargain with a reservation of a right on the buyer's part to return it at his option within some period. The main object of either provision is to give the buyer a chance to test the thing and find it satis-

factory before he shall finally be bound to the bargain."

There is, however, a vital distinction between these two types of sales. "We find the distinction quite marked as regards the immediate passing of property between sales 'on trial,' 'on approval' and the like and the bargain of 'sale or return,'" said the court. "There is a buyer's option, to be sure, but as it has been fitly said, an option to purchase if the buyer likes is essentially different from an option to return a purchase if he should not like it. In the one case the property will not pass until the option is determined, in the other the property passes at once subject to the right to rescind and return."



In "on approval" or "on trial" sales, "the custodian of the goods in the absence of a special contract fixing the degree of care to be exercised by him, is liable only for such injury to the property as results from his failure to exercise due care and diligence in its use and preservation."

In the purchase of a gas engine in Iowa the seller stipulated that payment should be made by the purchaser "when engine is set up, running and meeting your approval." Later a landlord claimed a lien on this engine for the unpaid rent of the purchaser. No title nor ownership, asserted the court, had vested in the buyer. The engine, in spite of the changed possession, was the property of the seller.

"In our view," said the court, "this order did not constitute a purchase. It was only an agreement for a purchase upon certain terms first to be performed by the seller. Under this order the buyer was to purchase after the machine was set up, running and meeting the seller's claims. He was liable for nothing until these terms had been complied with, and until he became liable for the purchase price there was no contract of sale.

"Property does not pass absolutely unless the sale is completed and it is not completed until the happening of any event expressly provided for, or so long as there remains to be done by the seller to the thing sold, anything to put it into a condition for sale or to identify it. This was a sale on approval after condition performed by the seller and it did not become complete until such approval by the buyer although he was given custody of the subject of the contract before that time."

Goods Returnable

This same time lag between a transfer of possession and a transfer of title and ownership was the determining feature in a sales tax suit brought in Kansas by Montgomery Ward & Co. Here the taxpayer sought to set aside an assessment of a sales tax. This assessment was made on shipments from the offices of the taxpayer outside Kansas to customers within this state with the condition that the goods might be returned at the option of the purchaser.

In determining the character of these transactions, the place where the sale occurred and the time the purchaser became owner, the court said:



"It is obvious that one may take a chattel on the understanding that he is to try it before the purchase shall take full effect. The object is to give the buyer a chance to test the thing and find it satisfactory before he shall finally be bound to the bargain."

"There are two rules to this general type of sale. One is known as a contract of sale or return; that is, where the sale is made with an option of return. In these cases the title passes to the buyer and the sale is completed upon delivery to the carrier regardless of the fact that the customer has a right to return the merchandise.

"The other is a sale on trial or approval. These are cases where the contract is to purchase certain goods if they prove to be satisfactory when delivered. In these cases the title does not pass until the buyer has expressly or impliedly expressed his approval or acceptance."

Transactions made in this manner however, impose an added liability on the seller unless provision to the contrary is made in the sales agreement itself. When, through no fault of the customer, goods are damaged or destroyed, the loss is placed by the law on the seller in sales on approval, unless a stipulation to the contrary has been made.

Such an instance occurred in Vermont in the sale of a milking machine to a farmer in that state, under an agreement which provided: "The buyer agrees that the title and right of possession of the goods ordered shall remain in the seller until actually paid for in cash."

During the period of a further provision in the contract that

"this outfit is subject to 30 days free trial," the machine was totally destroyed by fire. "The parties are not agreed," said the court in its decision on action brought by the seller for recovery, "as to the nature of the contract in question but we think it clear that it was a sale 'on approval' or 'on trial' or 'on satisfaction.' Since this is so the title to the goods at the time they were destroyed was in the seller and a purchaser was a mere custodian.

Normal Care Sufficient

"In transactions of this nature the custodian of the goods, in the absence of a special contract fixing the degree of care to be exercised by him, is liable only for such injury to the property as results from his failure to exercise due care and diligence in its use and preservation."

Here however, the seller had provided against this loss by a clause in the contract, sustained by the court, that the 30 days free trial "does not relieve the buyer from complete responsibility for the care and safety of the property."

Of the buyer's liability, or lack of it, for loss or damage to goods in sales on approval, where ownership and the passing of the title is postponed until after delivery, a Texas court said recently:

(Please turn to page 148)



NOW, FROM RIVERSIDE-ALLOY...

NICKEL WIRE IN PAY-OFF-PAK CONTROLLED TO $\pm .000025''$

Now from Riverside-Alloy you can obtain nickel and manganese-bearing nickel wire to tolerances as critical as plus or minus .00025" . . . in continuous lengths to 60,000 feet. Diameters .020" to .060" can be specified in Pay-Off-Pak at no additional charge. Credit for this product superiority goes to a new quality control unit used in conjunction with the Riverside-Alloy Pay-Off-Pak. Every inch of wire is continuously "miked" before entering the packing machines, assuring a controlled wire diameter.

Pay-Off-Pak, itself, gives you added benefits . . . ends the jumble of tangled wire, jammed machines and excess handling. Bright smooth finishes produced from the new Riverside-Alloy annealing process and drawing equipment are fully protected under all shipping and storage conditions.

Riverside-Alloy is the outstanding source for the finest in precision nickel wire.

Write today: *Riverside-Alloy Metal Division, H. K. Porter Company, Inc., Riverside, N. J.*



Riverside-Alloy's PAY-OFF-PAK is one neatly coiled length of wire replacing as many as eight (10 to 30 lb.) individually-wound, exposed coils. Pay-Off-Pak means smoother, faster production right down the line.

RIVERSIDE-ALLOY METAL DIVISION

PORTER

H. K. PORTER COMPANY, INC.

PORTER SERVES INDUSTRY: with Rubber and Friction Products—THERMOID DIVISION; Electrical Equipment—DELTA-STAR ELECTRIC DIVISION, NATIONAL ELECTRIC DIVISION; PEERLESS ELECTRIC DIVISION; Specialty Alloys—RIVERSIDE-ALLOY METAL DIVISION; Refractories—REFRACTORIES DIVISION; Electric Furnace Steel—CONNORS STEEL DIVISION, VULCAN-KIDD STEEL DIVISION; Fabricated Products—DISSTON DIVISION, FORGE AND FITTINGS DIVISION, LESCHEN WIRE ROPE DIVISION, MOULDINGS DIVISION, H. K. PORTER COMPANY DE MEXICO, S. A.; and in Canada, Refractories, "Disston" Tools "Federal" Wires and Cables "Nepcoduct" Systems—H. K. PORTER COMPANY (CANADA) LTD.

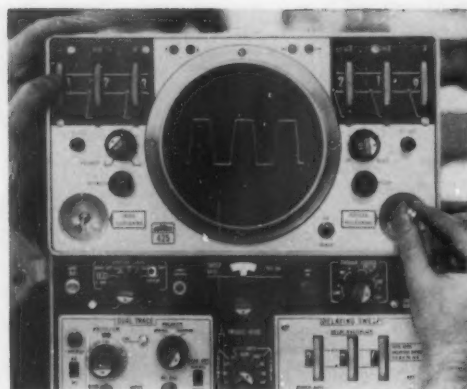
For More Information Write No. 206 on Inquiry Card—Page 32

FEBRUARY 29, 1960

89

Products and Ideas

Direct Reading Oscilloscope Has Wide Industrial Use



Position of dots on cathode ray screen is controlled by index control and two sets of thumbwheels at top of panel. When one dot is indexed and the other placed on point to be measured, voltage and time values are shown by numbers next to thumbwheels.

THE CATHODE RAY oscilloscope, until now strictly a research and engineering instrument, has been given a place on the manufacturing line and in production control by the Allen B. Du Mont Laboratories, Inc., Clifton, N.J. Direct numerical reading, incorporated in Du Mont's new model 425 high frequency general purpose oscilloscope, makes it possible for unskilled persons to read its measurements accurately and quickly.

The oscilloscope, a basic tool in the electronics industry, measures the voltage and time of an

alternating electrical input by projecting it as a waveform on the calibrated face of a cathode ray tube. Until now the magnitude of the voltage and time values had to be read from the grid pattern on the tube face. This was not only time-consuming but introduced errors of parallax, adjustment, and interpolation.

Easy to Use

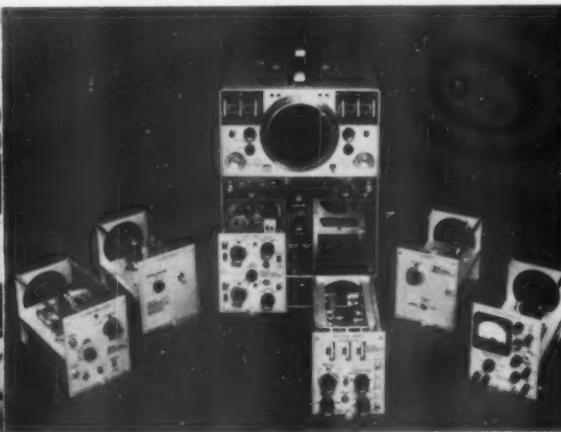
The digital readout system of the new scope is simple to operate. Six thumb wheels and a joy stick type position control move two display dots across the

face of the cathode ray screen. With the position control the operator places the index dot on a reference part of the waveform; then he adjusts the thumb wheels to move the second, or scaling, dot to a position on the trace where the measurement is to be taken. The thumb wheels, which are arranged in two sets of three each, also control the numerical settings. Once the two dots are positioned the voltage may be read from one set; and the time, in microseconds, milliseconds, or seconds, from the other.

(Please turn to page 92)



Simple operation of readout system makes it possible to use oscilloscope for production line checking.



The instrument is provided with two plug-in cavities. Six interchangeable plug-in units are available.



KEEPS *Total* COST DOWN

what do your relays cost **INSTALLED?**

INITIAL COST IS NOT THE WHOLE STORY

Potter & Brumfield relays are engineered for modern production methods. Many are available with printed circuit, taper tab or quick-disconnect terminals. Most can be adapted to fit your particular hook-up and mounting requirements. Simple, economical installation, plus low original cost *keeps total costs down*.

Here is another way to save with P&B relays! Many types bear U/L and Canadian Standards Association seals of approval . . . thus you save time and money

getting your equipment approved. For example, the relay shown above is our KA general purpose type. It bears the U/L seal, File Number E-29244.

Our catalog lists nearly 60 types of relays, one of which will probably fit, or may be adapted to, your specifications. There is a P&B sales engineer near you. He will be happy to discuss your relay requirements with you . . . and perhaps show you time saving, money saving installation methods.

Off the Shelf Delivery of standard P&B relays at factory prices is available from your local electronic parts distributor. Call him today for prototype, maintenance or short-run production quantities. See our complete catalog of standard relays in Radio Electronic Master.

THERE IS A P&B SALES ENGINEER NEAR YOU, READY AND ABLE TO DISCUSS ALL YOUR RELAY NEEDS. CALL HIM TODAY.



POTTER & BRUMFIELD

DIVISION OF AMERICAN MACHINE & FOUNDRY COMPANY, PRINCETON, INDIANA

IN CANADA: POTTER & BRUMFIELD CANADA LTD., GUELPH, ONTARIO

For More Information Write No. 207 on Inquiry Card—Page 32

ALLMETAL[®] STAINLESS STEEL FASTENERS



SHIPPED AT ONCE
from the world's largest **STOCK**

ALLMETAL specializes in all types of stainless steel fasteners; screws, nuts, bolts, washers, rivets, pins, 'AN' fasteners, etc. Batteries of cold headers and automatic screw machines also stand ready to turn out special fasteners to your specifications. A full range of raw material in stock to assure prompt service. Now! Sales offices in the East, Midwest and West for fast local service direct from the manufacturer. Call the ALLMETAL office nearest you—you can often receive the fasteners you need the very next day.

**SEND NOW FOR YOUR COPY OF
ALLMETAL'S COMPLETE FASTENER CATALOG**

Manufacturers of stainless steel fasteners since 1929

ALLMETAL[®]
SCREW PRODUCTS COMPANY, INC.

821 Stewart Ave., Garden City, L.I., N.Y. Phone: Pioneer 1-1200, TWX GCY603

Midwest Division 6424 West Belmont Avenue, Chicago 34, Illinois
Phone: AVenue 2-3232 TWX CG 3185

West Coast Division — Warehouse & Office
5822 West Washington Boulevard, Culver City, California
Phone: WEbster 3-9595 TWX: LA 1472

For More Information Write No. 208 on Inquiry Card—Page 32

Products

(Continued from page 90)

According to Du Mont, 40% of all engineering time using an oscilloscope is devoted either to reading or to interpolating the waveform pattern. Direct reading will free scientists and engineers from such routine work. Furthermore, unskilled production workers will be able to make continuous measurements in electrical manufacturing and production control. After an initial set-up by an engineer, the operator need only adjust the thumbwheels to obtain numerical readings. The scope may also be tied in with printing or card punching equipment for automatic recording or analysis.

Other applications are foreseen in medical research, atomic energy studies, and communication. In radar, for instance, the read-out can be made to indicate radar distance directly in yards. In testing electronic components it will be possible, by using pre-set conditions, to compare them to a standard, rejecting those whose wave patterns do not conform to the setting.

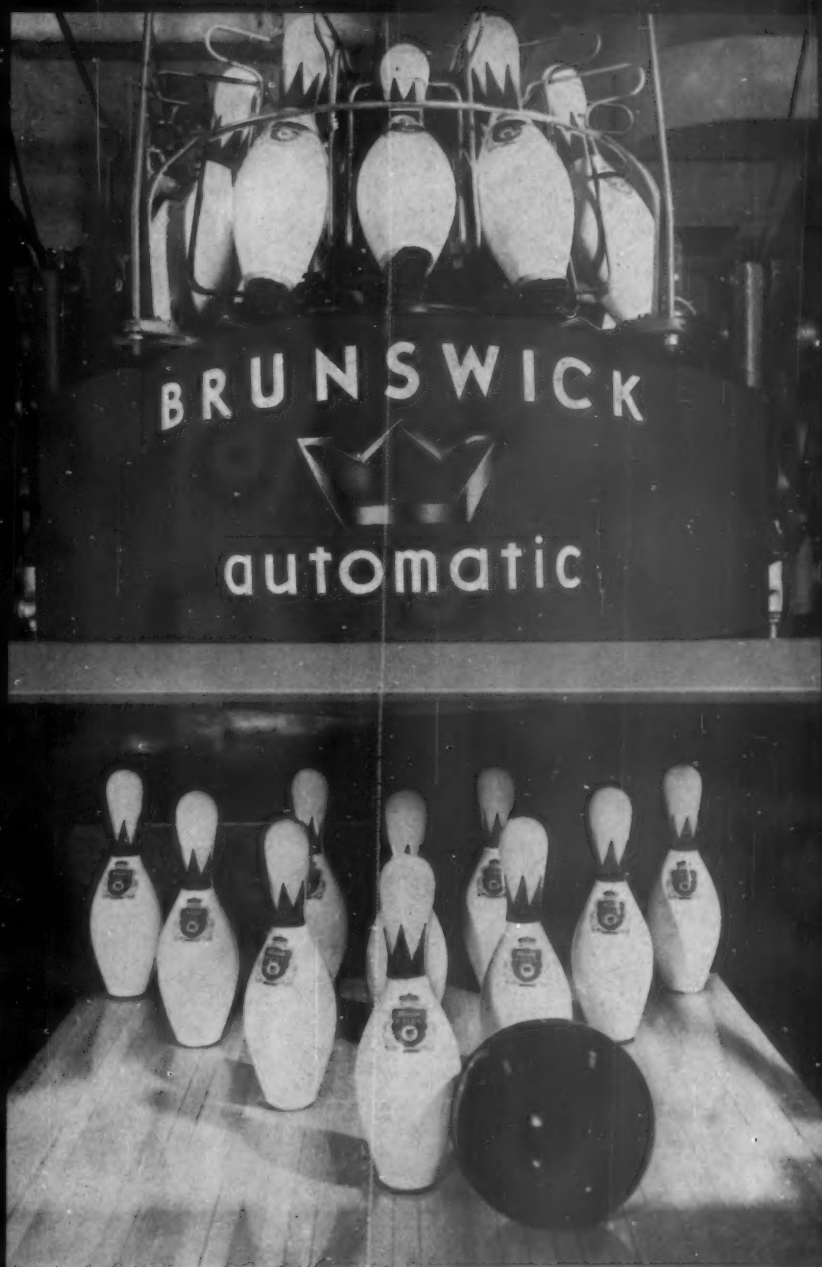
Has Plug-In Units

In addition to direct reading the scope also includes modular construction, a series of interchangeable plug-in amplifiers, and a new model cathode ray tube. It is useful over a frequency range from direct current to 60 megacycles and is down 3 db at 35 megacycles.

The model 425 has five basic modules built into the main frame. Each is a complete electromechanical unit. Extensive repairs and lengthy down-time are eliminated by this construction which permits any module to be replaced in a few minutes. They are the low-voltage power supply, high-voltage power supply, x-chassis and sweep circuits, front panel with readout generator and sync circuits, and the cathode ray tube. Standard type components are used. Long trouble free service is assured, the company believes, by the use of precision resistors and 10,000 hour tubes.

For More Information about ad on facing page Write No. 209 on Inquiry Card—pg. 32→

PURCHASING



Symbol of
Quality
to..



23,000,000
BOWLERS!

(and good bowling fun!)

The "baby split" has become as much a part of the language as the "banana split", and a "railroad" no longer merely describes a means of conveyance from one point to another.

To the 23,000,000 Americans who actively bowl—and to additional millions who watch the sport on television—they represent part of the terminology of the nation's fastest-growing sport.

And to millions of Americans the name "Brunswick" is synonymous with enjoyment of this indoor sport which draws no lines of sex, age or position in life.

As the nation's oldest and best-known bowling equipment firm, the Brunswick-Balke-Collender Company supplies millions of enthusiastic bowlers and thousands of epic-and-span bowling lanes with such necessary items as bowling balls, shoes, pins, scoring systems and other products.

But perhaps the most dramatic of the Brunswick products is its Automatic Pinsetter. A marvel of mechanization and of ingenuity in design, it must function steadily and accurately

game after game, night after night, week after week. There can be no breakdown or delay.

The Brunswick people have set up rigid standards for the material they use in their Automatic Pinsetter. This maintenance of quality and precision in all phases of manufacturing, this industry leadership, have made the name Brunswick a symbol of dependability.

DURKEE-ATWOOD V-Belts are an integral part of the Brunswick Automatic Pinsetters, which have been such a boon to bowling. They were selected because of their proven ability to give long and consistent service under the most difficult and demanding conditions. If you have a V-Belt problem that requires special attention and service, call your Durkee-Atwood distributor or write Durkee-Atwood Company, Minneapolis 13, Minnesota.



Look for the  on your V-Belts

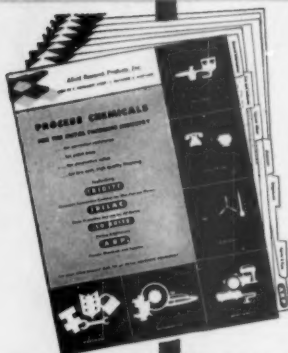
DURKEE-ATWOOD V-BELTS
DURKEE-ATWOOD COMPANY • MINNEAPOLIS 13, MINNESOTA

FREE DATA FILES on *Allied Research* LINES

LOOK
FOR THE
DIAMONDS—SIGN
OF FINISHING QUALITY

METAL FINISHING PROCESSES

A complete line of quality products and processes developed primarily as a result of helping manufacturers like yourself solve their metal finishing problems. If one of our present products does not meet your needs, we'll be glad to work with you to find an answer to your problem.



IRIDITE[®] Chromate Conversion
Coatings for Non-Ferrous Metals.

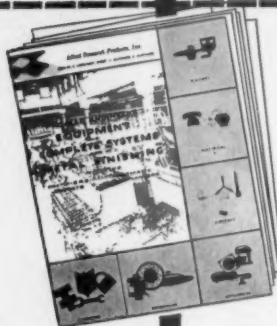
IRILAC[™] Clear Protective Coatings
for All Metals.

ISOBRITE[®] Chemically Different
Plating Brighteners.

ARP[®] Process chemicals.

EQUIPMENT AND COMPLETE SYSTEMS for Metal Finishing

Process Engineered—Single pieces of equipment or all equipment necessary for a finishing operation—evaluated, designed, fabricated, installed and tested to match exactly your particular process. Ask about our *Process Engineering Service*.



WAGNER RECTIFIERS

Silicon and Selenium, built to exacting specifications for long life, trouble-free service.

WAGNER AUTO-LOADERS

for fast, economical transfer of racks and parts, conveyors to plating machines, between conveyors.

**AUTOMATIC AND SEMI-AUTOMATIC
PLATING MACHINES**

BARRELS, TANKS and other equipment.

CHEMICALS AND SUPPLIES

Prompt service on a wide variety of daily-use necessities for the plating room, delivered from warehouse stocks strategically located in cities in metalworking areas.



FLAT-TOP[®] ANODES
in copper and zinc.

LECTROCOP[®] FLAT COPPER
ANODES

CADMIUM, WHITE BRASS AND TIN ANODES in most efficient shapes. Acid Replacements, Buffs, Chemicals, Cleaners, Maintenance Materials.

NICKEL RECASTING SERVICE

Ask your Allied Field Engineer about our Subscription Plan which combines your new nickel purchases with a service to recast your butts and spears, resulting in substantial savings.

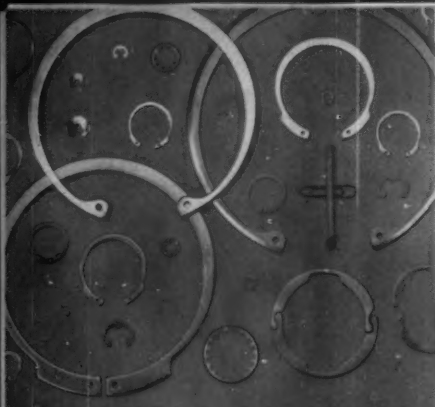


Allied Research Products, Inc.

4004-06 EAST MONUMENT STREET
BALTIMORE 5, MARYLAND

Branch Office: 400 Midland Avenue, Detroit 3, Michigan
Chemical and Electrochemical Processes, Anodes,
Rectifiers, Equipment and Supplies for Metal Finishing.

WRITE TODAY FOR COPIES of these useful files describing technical details of our complete line, OR, phone your Allied Field Engineer. He's listed under "Plating Supplies" in your phone book.



Widest line—over 700 standard sizes of Truarc Retaining Rings, 50 functionally different types, 6 metals, 13 finishes.



Tools to lower production costs—Truarc Ring-Gun, for example, speeds assembly, increases production with stacked rings.



National distribution—For on-the-spot technical assistance and service, there's a Truarc field engineer or distributor near you.



Wealth of technical data on retaining rings and assembly tools.



Waldes Plant—over 200,000 square feet. Modern equipment, skilled personnel insure high production, precision retaining rings.



Design Assistance—John Petrie, Waldes Sales Engineer (right) discusses how Truarc rings take up end-play and eliminate gauging operations in fractional hp motor with (l. to r.) Carl C. Varner, Methods Engineer; John A. Toth, Buyer; Donald E. Schott, Product Engineer, of Leece-Neville Co., Cleveland.

PURCHASING VIEWPOINT: Initial price of a component is only part of the story. Final installed cost is even more important to a purchasing man. It's here that Truarc retaining rings are most likely to save your company money. Some of the reasons why are shown above. More in Catalog RR10-58, ask for it. 9,14



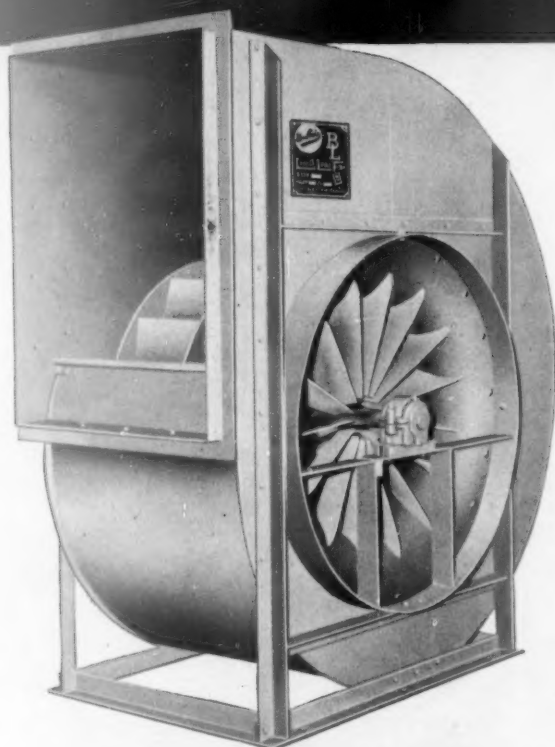
**WALDES
TRUARC® RETAINING RINGS**

WALDES KOHINOOR, INC., 47-16 Austel Place, Long Island City 1, N. Y.

TRUARC RETAINING RINGS . . . THE ENGINEERED FASTENING METHOD FOR REDUCING MATERIAL, MACHINING AND ASSEMBLY COSTS

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"BUFFALO" MEANS RELIABILITY



IN AIR MOVING

You can depend upon Buffalo to get the most from Air Moving Equipment. For more than 83 years Buffalo products have been **quality** engineered and built for extra years of dependable, trouble-free service. The **complete** Buffalo line of Air Moving Equipment includes:

- Fans (Centrifugal and Axial Flow. Blowers... Exhausters.
- Heating, Ventilating and Air Conditioning Equipment.
- Coolers... Driers... Unit Heaters... Humidifiers, Dehumidifiers.

BUFFALO BUILDS A MODEL AND CAPACITY TO FILL YOUR EVERY NEED

Remember, Buffalo can help you get the **most** from air moving equipment. Call in your Buffalo Representative, or write us direct for information.

BUFFALO FORGE COMPANY

Buffalo Pumps Division Buffalo, N. Y.
Canadian Blower & Forge Co., Ltd., Kitchener, Ont.



VENTILATING • AIR CLEANING • AIR TEMPERING • INDUCED DRAFT • EXHAUSTING
FORCED DRAFT • COOLING • HEATING • PRESSURE BLOWING

For More Information Write No. 212 on Inquiry Card—Page 32

Products

New, Heavy-Duty Vaportight Floodlight



A new heavy-duty floodlight is particularly designed for use in all locations exposed to moisture, rain, sleet, ice, corrosive fumes, non-explosive gases and non-combustible dusts. Vaportight clear through, unit is sealed with a heavy tempered-glass front lens and high-temperature live silicone-rubber gasket. Advanced design eliminates back and side halo-light. Particularly effective for failure-prone installations in tunnels, bridges, railroad yards, etc. **Stonco Electric Products Co., 333 Monroe Ave., Kenilworth, N.J.**

Write No. 18 on Inquiry Card—Page 32

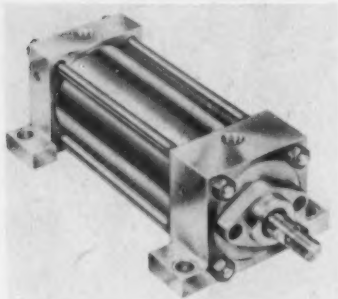
End Mills for Hard Abrasive Materials



End mills made of Vanadium high-speed steel are intended for machining hard abrasive materials Rc 30-40. Specially designed face provides maximum cutting efficiency on pre-hardened and high-strength, heat-resistant materials. High-speed steel end mills are standard in 2, 3, 4 and 6 flutes from 3/8 in. through 2 in. diameters. **DoAll Co., Des Plaines, Ill.**

Write No. 19 on Inquiry Card—Page 32
PURCHASING

Low Pressure Air and Hydraulic Cylinders



New low pressure air and hydraulic cylinders are stronger and more leak-free and are available in 1½ through 8 in. bores; capacities are 250 psi air and 400 to 1000 psi hydraulic, depending on bore size. A wide variety of mountings, rod diameters and rod ends make cylinder adaptable to practically any installation. Choice of packings meets high or low temperature requirements and those of fire resistant hydraulic fluids. **Hanna Eng. Works, 1765 Elston Ave., Chicago 22, Ill.**

Write No. 20 on Inquiry Card—Page 32

New Bright Nickel Process Available

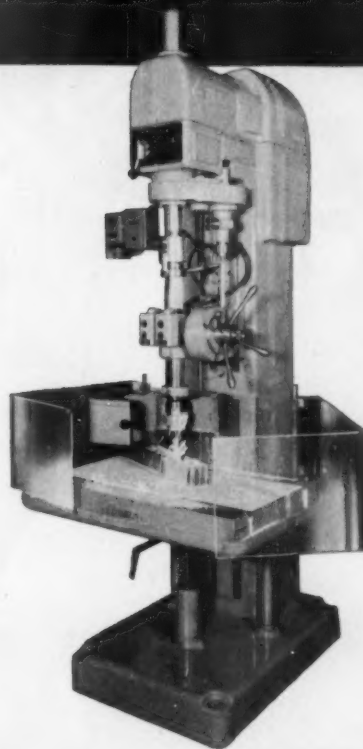


A new bright nickel process yields deposits which are exceptionally bright at high and low current density areas and has extraordinary ability to level out scratches. Process also has excellent tolerance to inorganic impurities such as zinc and copper. Bath is amenable to continuous carbon treatment, resulting in relative freedom from organic contamination. Conversion of existing baths to new process is said to be relatively easy. **Hanson-VanWinkle-Munning Co., Church St., Matawan, N.J.**

Write No. 21 on Inquiry Card—Page 32

FEBRUARY 29, 1960

"BUFFALO" MEANS RELIABILITY



IN MACHINE TOOLS

Whenever you are buying machine tools be sure to consider Buffalo. When you buy Buffalo, you buy **quality** that actually costs you less. That's a fact backed by Buffalo's reputation for quality without compromise during our 83 years. Buffalo Machine Tools like the following are speeding production and maintenance jobs in all types of industry:

- Single-, Multi-, and Hollow-Spindle Drilling Machines
- Punches . . . Shears
- Bar Cutters ● Billet Shears ● Bending and Wrapping Rolls
- The Versatile Buffalo Universal Iron Worker

AVAILABLE IN A WIDE RANGE OF TYPES AND CAPACITIES

Your local Buffalo machine tool dealer will be glad to help you select the unit best suited to your needs. Call him today, or write us direct.

BUFFALO FORGE COMPANY

143 Mortimer Buffalo, N. Y.

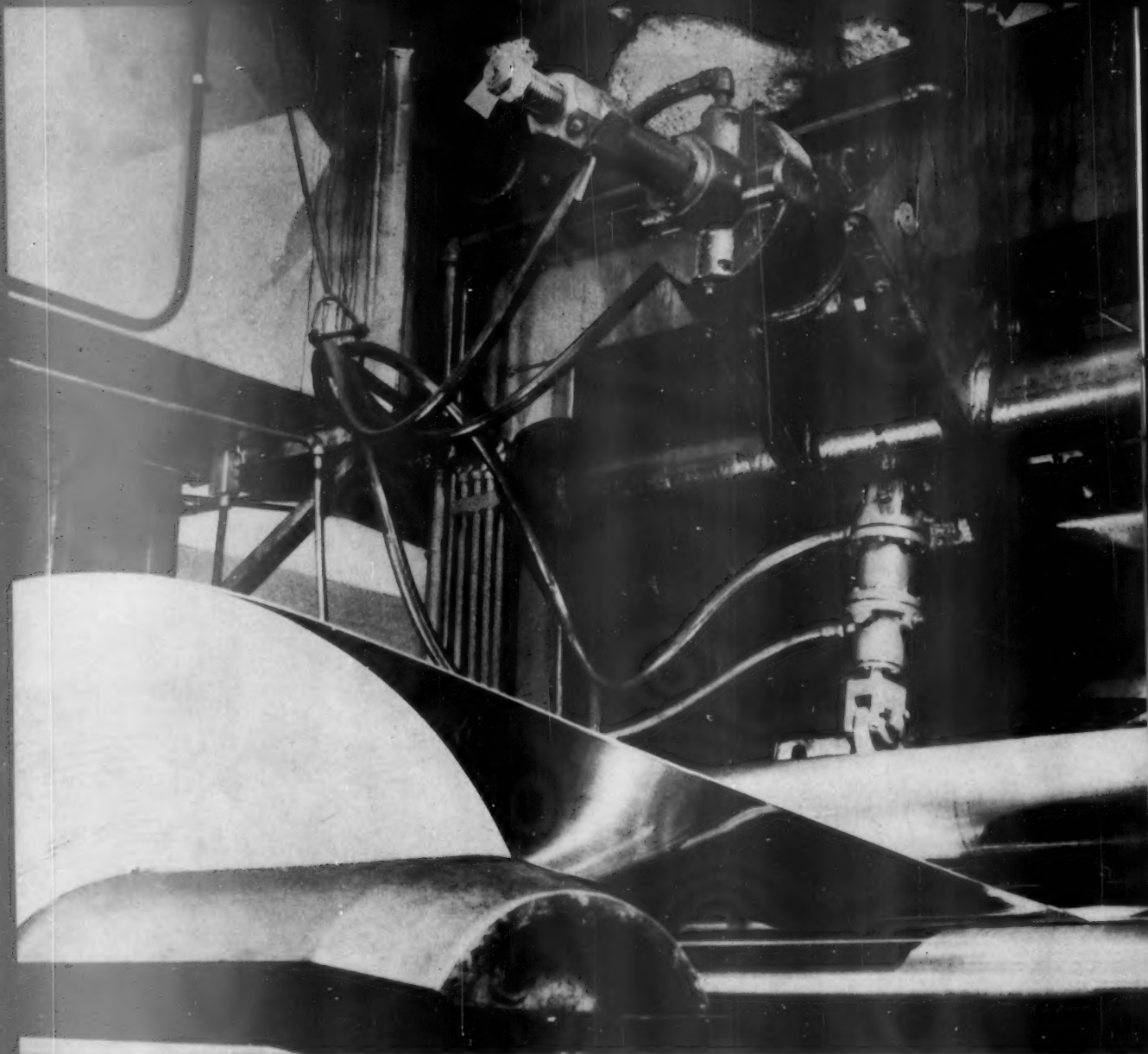
Canadian Blower & Forge Co., Ltd., Kitchener, Ont.



DRILLING • PUNCHING • SHEARING • BENDING

For More Information Write No. 213 on Inquiry Card—Page 32

For More Information about ad on following page Write No. 214 on Inquiry Card—pg. 32→



Custom rolling sheet aluminum at Sheet Aluminum Corporation, Jackson, Michigan. All hydraulic systems in the plant are filled with Gulf Harmony oil. Photo shows processed aluminum being wound on tension reel at delivery end of mill.

Cut costs with versatile Gulf Harmony® for plant lubrication

GULF MAKES THINGS

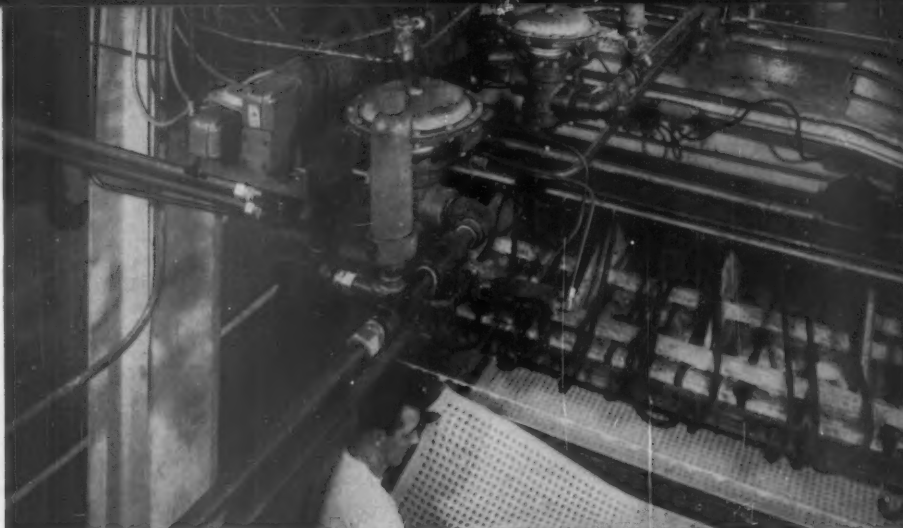
Using numerous special purpose lubricants? Here's relief. You can meet virtually every oil requirement in your plant—including fluid power for hydraulic systems—with Gulf Harmony.

In central lubricating systems, hydraulic systems, in the lubrication of dryer roll bearings, air compressors, blowers, machine tools, electric motors and a host of other applications—Gulf Harmony can save you money and simplify your oil problems.

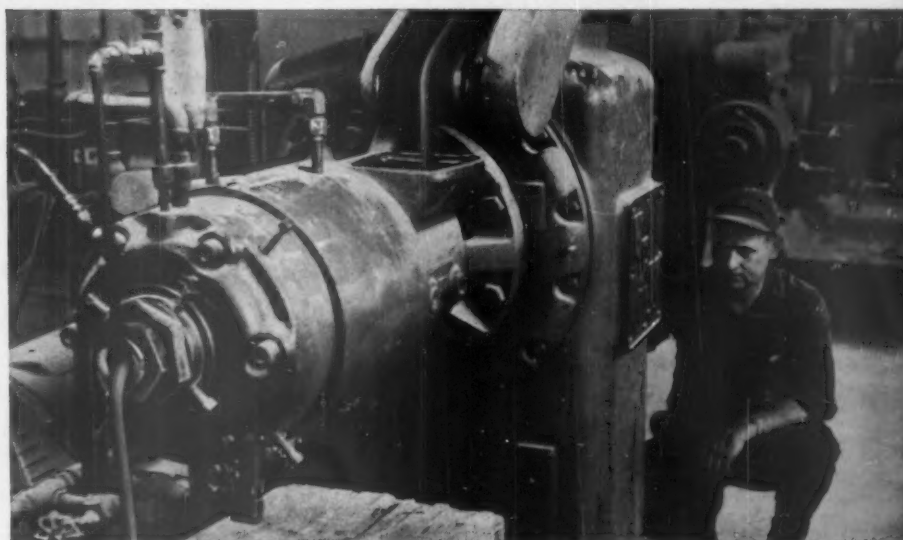
The unusually high oxidation resistance of Gulf Harmony assures longer life—for both machine and lubricant—and freedom from harmful sludge deposits.

In addition, Gulf Harmony maintains its original viscosity and color stability for exceptionally long periods.

A patented anti-foam agent in Gulf Harmony prevents objectionable foaming. And there is a strong anti-corrosion additive that protects against rust. Gulf Harmony oil performs remarkably well in bearings exposed



Moulding Texfoam mattresses at the B. F. Goodrich Sponge Products Division, Shelton, Connecticut. Here, through hydraulic equipment as shown in upper foreground, Gulf Harmony supplies fluid power for 125 moulding presses.



Extruding rubber hose at Swan Rubber Company, Bucyrus, Ohio, world's largest producer of garden hose. The many precision gears in the speed reduction units of the extruder shown here operate in a bath of Gulf Harmony oil.

and hydraulic systems . . . see how

RUN BETTER!

to high ambient temperatures and humid atmospheres.

You name the application—and your Gulf Sales Engineer will gladly recommend the proper grade of Gulf Harmony. He'll also show you how this versatile oil can help cut your maintenance costs and simplify your lubricant storage and handling.

If you have a lubrication problem at your plant, we invite you to see how Gulf makes things run better. Just call your nearest Gulf office, or mail the coupon.

GULF OIL CORPORATION
Dept. DM, Gulf Bldg., Pittsburgh 30, Pa.

Please send latest illustrated
bulletin on Gulf Harmony.

Name _____
Title _____
Company _____
Address _____
City _____ Zone _____ State _____



**New "Taylorite"[®]
is a veritable
workhorse**



**Improved Vulcanized Fibre has
new flexibility, new uniformity,
new structural strength to fit it to
even broader application in many fields**

There has been a big change in Taylor Vulcanized Fibre, including the name. New processing equipment and atmosphere-controlled storage facilities have enabled us to make major advances in overall uniformity—from lot to lot and at no increase in cost to you. Taylorite has wide use as an insulating and structural material for electrical and electronic applications. But it is being put to service in many other ways, too. A good example is choice of Taylorite as kick-back plates in bowling alleys. Here it must withstand the constant pounding of flying pins without structural breakdown or damage to the pins. And it is doing its job perfectly.

Find out how new Taylorite Vulcanized Fibre can help improve your products and cut costs. Send for samples. Test them for yourself. Put them under tension, flex them, compress them, form them. You will find that Taylorite passes your severest tests with flying colors. Write for Data Sheet 2-0 and samples today. Taylor Fibre Co., Norristown 36, Pa.

KICK-BACK PLATES of Taylorite give good pin action, prevent pin damage



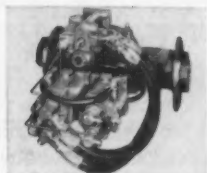
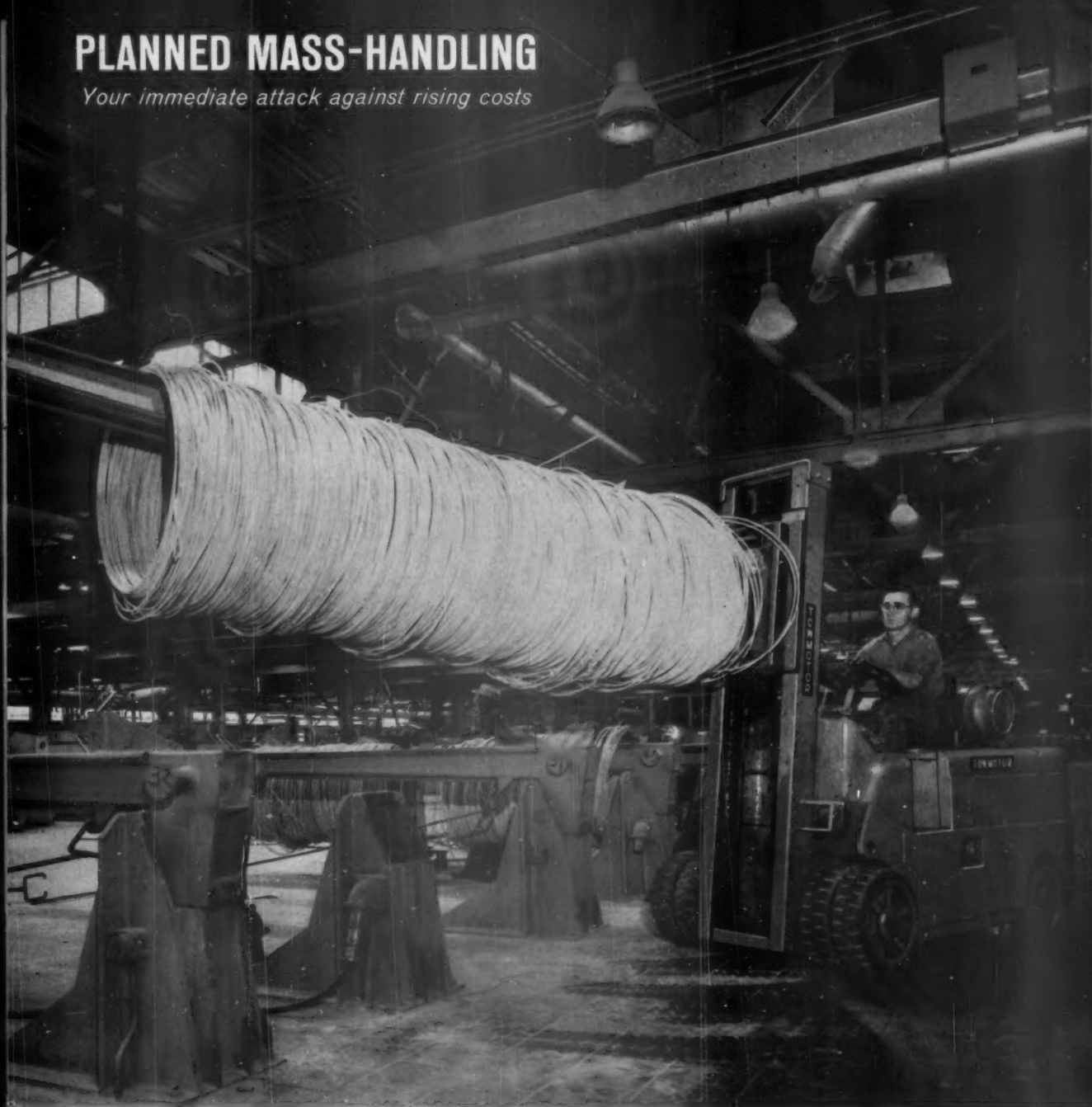
For More Information Write No. 215 on Inquiry Card—Page 32

100

For More Information about ad on facing page
Write No. 216 on Inquiry Card—pg. 32—
PURCHASING

PLANNED MASS-HANDLING

Your immediate attack against rising costs



IT'S A FACT: The unique Towmotor Towmostatic Drive guarantees handling flexibility, smooth operation and maintenance benefits far greater than any other fork truck drive.

YOUR SHORTCUT TO EXTRA PROFIT is through planned mass-handling that puts the right product in the right place at the right time. Integrating TOWMOTOR fork lift trucks into your production operation is the fastest way to lower costs and increase profits. Write for case studies that show you how similar companies are reducing costs through more effective handling operations. TOWMOTOR CORPORATION, CLEVELAND 10, OHIO.

FORK LIFT TRUCKS, CARRIERS AND TRACTORS SINCE 1919



Gerlinger Carrier Co. is a subsidiary of Towmotor Corporation

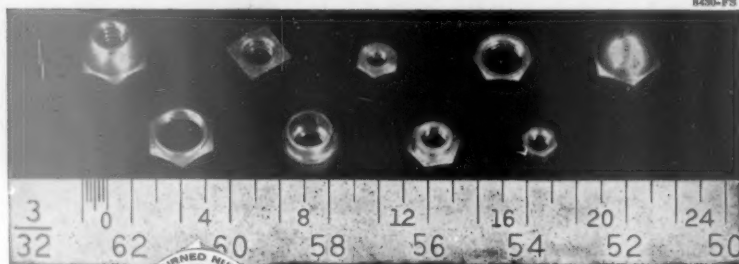
**Take a
close look
at precision...**



**in
MINIATURE!**

This is a brass "jewel" nut. A .100-100 shoulder nut used in precision electrical instruments, it is mass produced by FISCHER to Class 3 tolerances, countersunk both sides and supplied deburred, cleaned, ready to install.

FISCHER specializes in turned nuts . . . standards, specials, odd sizes and types . . . having diameters from $\frac{1}{8}$ " and standard or special threads from No. "0". Each type is made to exacting specifications, delivered promptly, priced competitively. And these are the reasons FISCHER is your best source for dependable miniature nuts.



there's no
premium
for precision at



Fischer

FISCHER SPECIAL MFG. CO.
471 Morgan Street, Cincinnati 6, Ohio

This enlarged scale photograph illustrates typical miniature nuts being supplied for electrical and electronic products.

For details and
specifications
on Fischer brass
and aluminum nuts,
write for CATALOG
FS-1000 and prices.



For More Information Write No. 217 on Inquiry Card—Page 32

Products

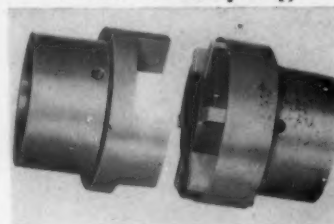
**Self-Fluxing
Brazing Alloys**



A new line of self-fluxing brazing alloys is intended for high-temperature service applications. Alloys contain a vaporizing flux which permits brazing difficult alloys such as aluminum- and titanium-bearing metals in hydrogen and argon atmospheres. They are also useful where atmosphere is marginal. Flux constituent will attack no known metal and leaves no residue. It has no deleterious effect on heat and corrosion resistance or any other property of the brazing alloy. **Stainless Processing Div., Wall Colmonoy Corp., 19345 John R St., Detroit 3, Mich.**

Write No. 41 on Inquiry Card—Page 32

**New Heavy-Duty
Flexible Coupling**



A new model flexible coupling is intended for heavy-duty use in sizes from 35 to 700 HP @ 1800 RPM and for shafts up to $5\frac{1}{2}$ in. diameter. Coupling consists of two metal bodies with interlocking jaws separated by non-metallic load cushions which provide a spring cushion for vibration, shock loads and misalignment. Removable individual inserts are held in place by a steel collar to provide easy inspection or replacement without disturbing driving or driven units. No metal-to-metal contact; and no lubrication required. **Gerbing Mfg. Corp., Elgin, Ill.**

Write No. 42 on Inquiry Card—Page 32
PURCHASING



Should you . . . or shouldn't you use pallets?

ELIMINATING PALLETS . . . *appears* to offer obvious savings. The many new attachments in use for this purpose makes the idea even more attractive. However, many possible pitfalls face even the experienced materials handling man.

YOUR DECISION should be based on a careful analysis by specialists who have had broad experience with such conversions. Your local Clark dealer, for example, is able to offer you not only his own specialized knowledge, but in addition, that of a team of Clark engineers who have dealt with countless companies on the same subject.

THE COMBINATION of specialized knowledge, a complete line of equipment (including all

power types), plus a full line of job-engineered attachments, gives your Clark dealer an opportunity to present you with a completely unbiased, and carefully documented recommendation.

REDUCING COSTS is of prime consideration. The elimination of pallets in your operation may prove to be the quickest, soundest way of accomplishing this objective. It's worth investigating. Contact your local Clark dealer, listed in the Yellow Pages under "Trucks, Industrial" or, if you prefer, write: Engineering Aid, Clark Equipment Company, Battle Creek, Michigan.

**CLARK®
EQUIPMENT**

For full details, circle 77 on reader service card

Experience—the added alloy in Allegheny Ludlum tool steels



Careful addition of sulfur to melt guarantees typical sulfide distribution, as shown in photomicrograph of longitudinal specimen of EZ MACHINING tool steel.

Sulfur addition to melt held to narrow range in Allegheny Ludlum's EZ MACHINING GRADES

Uniform, finely-distributed sulfides mean uniform machining, uniform high finish, uniform long tool life order after order

Adding sulfur, actually an impurity, to a tool steel melt to make it free-machining must be done with care and precision. That's why Allegheny Ludlum maintains an extremely close average range in adding sulfur to its EZ MACHINING grades. But mere range, however narrow, is not enough. A-L has developed special techniques in adding sulfur and nucleating agents to produce the uniform, finely-distributed sulfides that characterize good free-machining tool steels.

A-L's extra care means you can standardize your machining operations from piece to piece and order to order. This reproducibility is reflected in uniform machining; uniform high finish; uniform long tool life.

For example, in the production of hobs these machining properties in Allegheny Ludlum's EZ MACHINING steels minimize the costly "backing off" operation for back clearance of multiple teeth, eliminating complicated extra heat treatment. Lower residual stresses are set up, because the steel has a lower resistance to the cutting action. Naturally, hobbing is only one of the situations where these free-machining characteristics can benefit you.

Allegheny Ludlum stocks a complete line of tool steel sizes and grades. Call your nearest A-L representative; you'll get quick service and counsel on such problems as heat treating, machining, grade selection, etc. Or write for A-L's publication list which gives full data on the more than 125 technical publications offered. They'll make your job easier. **ALLEGHENY LUDLUM STEEL CORPORATION, Oliver Building, Pittsburgh 22, Pa. Address Dept. P-261**

7288

ALLEGHENY LUDLUM

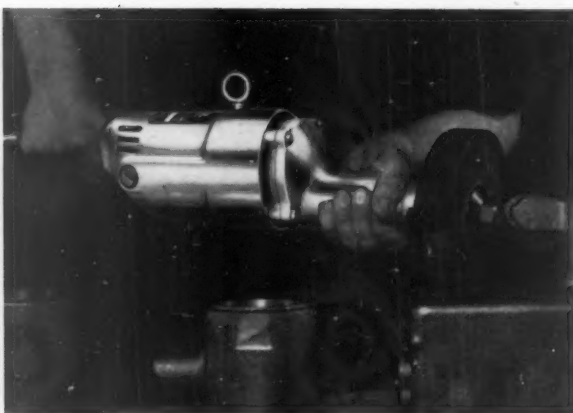
Tool Steel warehouse stocks throughout the country... Check the yellow pages
every grade of tool steel... every help in using it



For More Information Write No. 219 on Inquiry Card—Page 32



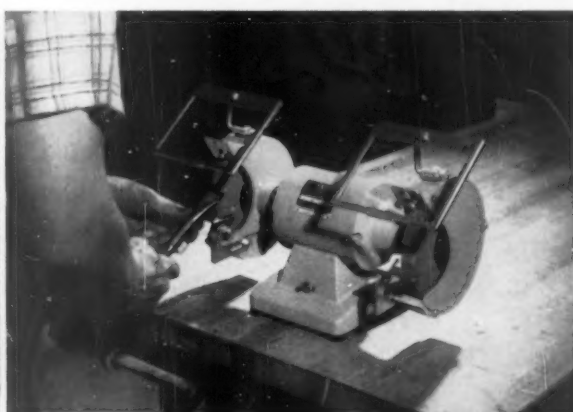
20,000 RPM HAND GRINDER is excellent for tool and die work, pattern and model work. Also available in 36,000 rpm ultra high speed model. $\frac{1}{2}$ " collet chuck. Weighs only 2 $\frac{1}{4}$ pounds.



6" HEAVY DUTY PORTABLE GRINDER tackles the toughest work encountered in grinding heavy castings, wire brushing or buffing and polishing most metal surfaces. Contour-grip handle.



9" SUPER-DUTY PORTABLE SANDER-GRINDER offers light weight, high speed and tremendous power, even under maximum load. Used with 6" cup grinding wheels, 6" wire cup brushes, 7" and 9" disc wheels and 7" and 9" sanding discs.



$\frac{1}{2}$ HP 6" BENCH GRINDER has powerful split-phase motor, all ball-bearing construction. Features include eye shields, end-bell covers and adjustable tool rests. For all kinds of grinding, sharpening and wire brushing work.

There isn't a tough grinding job going that a SKIL GRINDER can't handle!

Rugged SKIL Grinders, both portable and bench type, are ready to handle *any* grinding job—the tougher the better! The only question is which one suits your particular grinding needs best. There are 18 powerful models in all plus a full line of accessories, including grinding wheels, wire brushes and eye shields. Ask your SKIL dealer for a

Grinder demonstration and a copy of the 58-page SKIL Industrial Power Tool Catalog. Or simply mail coupon.

FREE! 58-page Industrial Tool Catalog

SKIL Corporation, Dept. PGT-20 In Canada:
5033 Elston Avenue 3601 Dundas Street, West
Chicago 30, Illinois Toronto 9, Ontario

- ☐ Please send me name of nearest distributor.
☐ Please send me FREE booklet on SKIL power tools.

Name _____

Address _____

City _____ Zone _____ State _____



Made only by SKIL Corporation,
Chicago 30, Illinois, Factory Branches in leading cities.

For More Information Write No. 220 on Inquiry Card—Page 32



Photograph by Elliott Erwit

SAM FAHNESTOCK DEALS IN ALUMINUM FUTURES

"How can I do this in aluminum?" Chances are that your industrial designer has learned to depend on Sam Fahnestock for authoritative answers. For, as chief of Alcoa's industrial design section, Sam gives him a direct line to the world's foremost source of aluminum knowledge.

Because they are graduate industrial designers themselves, Sam Fahnestock

and his staff can speak the designer's language. While they do no product designing, they counsel on alloy selection, joining, fabricating and finishing techniques. And they keep the entire profession posted on innovations that come with inspiring regularity from Alcoa Research and Development Laboratories.

Through the medium of this unique

service, Alcoa has created bright futures for such diverse products as furniture, photographic items, electrical appliances and hundreds more. This help—either for your independent design consultant or your staff designer—is one more added value in every pound of Alcoa® Aluminum. Aluminum Company of America, 2017-B Alcoa Building, Pittsburgh 19, Pa.



ALCOA *helps you design it, make it, sell it*



Alcoa has hundreds of Sam Fahnestocks to help you design it, make it, sell it

All of Alcoa's skills are mobilized to a single purpose: To put more than just 16 ounces of metal in every pound of Alcoa Aluminum you buy. Here are 12 of the dozens of ways to do it:

1. **Research Leadership**, bringing you the very latest in aluminum alloys and applications.
2. **Product Development** by specialists in your industry and your markets.
3. **Process Development Labs** for aid in finishing, joining and fabricating.
4. **Service Inspectors** to help solve production problems at your plant.
5. **Quality Control** to meet top standards or match your special needs.
6. **Complete Line** including all commercial forms, alloys, gages, tempers.
7. **Availability** via the nation's best stocked aluminum distributors.
8. **Foremost Library** of films and books to help you do more with aluminum.
9. **Trained Salesmen** with a wealth of on-the-spot information.
10. **Sales Administrators** constantly on call to service your orders.
11. **Year-Round Promotions** expanding your old markets, building new ones.
12. **The Alcoa Label**, leading symbol of quality aluminum, to mark your goods.

Added Values With Alcoa Aluminum



... is a case book of Alcoa special services and a guide to their availability in design, manufacture and sales. Your copy, with some of the most rewarding information you may ever read, is waiting and it's FREE. Write: Aluminum Company of America, 2017-B Alcoa Building, Pittsburgh 19, Pa.

For More Information Write No. 221 on Inquiry Card—Page 32

FEBRUARY 29, 1960

Products

New Easy-Processing Silicone Varnish



A new Class H silicone dipping and impregnating varnish is said to be as easy to process as most Class A and Class B varnishes. New material cures in only six hours at 150 C, and run-off is substantially lower. New varnish meets AIEE requirements for use in 220 C systems and permits production of Class H units on equipment designed for Class A and B. When used with other Class H components in power transformers, servo-mechanisms and electronic devices designed for higher temperature rise, greater thermal stability permits smaller, lighter, more reliable units. **Dow-Corning Corp., Midland, Mich.**

Write No. 22 on Inquiry Card—Page 32

High Capacity, Direct Reading Dynamometers



Two additions to a line of direct-reading, traction-type portable force-measuring instruments provide 150,000 and 200,000 lb. capacities. Both have net weight of 23 lbs., independent of shackles, pins and shunt bar, and are built for rough use. Both have highly visible 10 in. diameter dials. Units

include the following features: red maximum hand which "remembers" point of peak load; fatigue-tested beam; built-in overload protection; accuracy of 2% plus or minus full range. **W. C. Dillon & Co., Inc., 1462 Keswick St., Van Nuys, Calif.**

Write No. 23 on Inquiry Card—Page 32

Multi-Layer, Sectional Insulating Material

A new insulating material is a multi-layer, sectional-type thermal insulative primarily composed of calcium silicate-asbestos fiber bonded felts. Designed for temperatures ranging from 200 to 1200 degrees F, material is supplied in simplified thicknesses. For pipe sizes ½ to 6 in. in diameter it is available in nominal thicknesses of 1 to 4 in.; for pipe 7 to 24 in., in thicknesses of 1½ to 4 in.; and in sectional or tubal form on request. Advantages include greater resistance to shock, improved handling characteristics and easier installation. **Keasbey & Mattison, Ambler, Pa.**

Write No. 24 on Inquiry Card—Page 32

Inorganic Insulating Board is Fireproof



A new, inorganic insulating sheet material combines light weight and structural strength. Board is 100% incombustible and practically unaffected by moisture or temperature. It can be used for ovens, ceilings, partitions, firewalls, heat screens, etc. Available in sheets up to 4 x 8 ft. in thicknesses of 1, 1½, 2, 2½ and 3 in., the white board will not rot, mold or sustain vermin. It can be worked like wood without damage to tools, and it takes and holds nails and screws as lumber. **Union Asbestos & Rubber Co., Fibrous Products Div., 1111 W. Perry St., Bloomington, Ill.**

Write No. 25 on Inquiry Card—Page 32

***This shop
cuts costs
by using
STANICUT
Oil 137 BCS***

**Machines seven metals,
one plastic with this one
cutting fluid**

Shank Manufacturing Company, Chicago, cuts production costs three ways by using STANICUT Oil 137 BCS. (1) The 15 Warner & Swasey Lathes are never down for change of cutting fluid when the metal being worked is changed. There's no time lost with shutting down, cleaning up and changing oil. (2) There are no losses from the use of the wrong cutting fluid. (3) Floor space is used for productive machinery instead of being tied up as storage space for barrels of different cutting fluids.

Titanium, brass, alloy steel, aluminum and seven grades of Stainless plus Teflon plastic are all worked on the machines. Latest equipment, a reputation for good work, experienced operators and on-time delivery keep business coming to Shank. STANICUT Oil 137 BCS helps Shank hold down manufacturing costs.

Does cutting costs with a cutting fluid interest you? Let one of Standard Oil's experienced lubrication specialists show you how STANICUT Oil 137 BCS can do it. Call the Standard Oil office nearest you in any of the 15 Midwest or Rocky Mountain states. Or write **Standard Oil Company (Indiana), 910 South Michigan Avenue, Chicago 80, Illinois.**

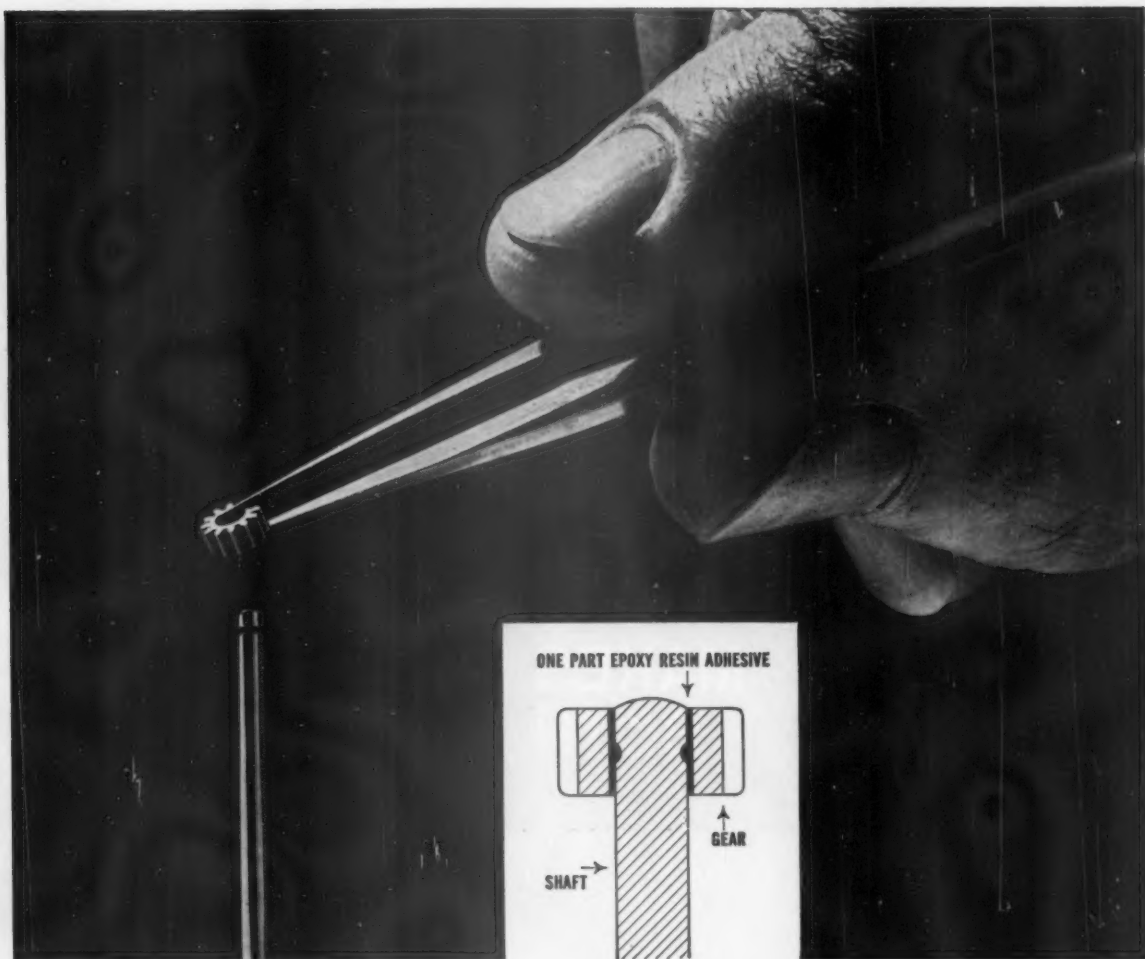
You expect more from



and you get it!

Frank Kruppe, Shank president (left) shows Hank Krueger of Standard Oil one of the pieces Shank Mfg. produces. Hank Krueger provides Shank plant with technical service on cutting fluids. Hank has the experience for this work. He's been doing it for six years. He has an engineering degree from Illinois Institute of Technology and has completed Standard's Sales Engineering School.





How fabricating with **SCOTCH-WELD®** Structural Adhesives eliminated 100% inspection step

Timing components now being fabricated with SCOTCH-WELD Adhesive EC-1386 meet precise specifications. The Haydon Division, General Time Corp., Torrington, Conn., is using this one-part epoxy resin base adhesive to bond small pinion gears to rotor shafts in a sub-assembly timing gear operation.

Prior to use of EC-1386, the parts were joined by brazing. But the high heat required affected the material hardness. It also produced shaft distortion, necessitating a 100% inspection step.

Then SCOTCH-WELD Adhesive EC-1386 was used. The high heat previously required was eliminated. With the end of this trouble source, shaft concentricity and material

hardness were left unaffected, the 100% inspection eliminated. Close tolerance requirements between shaft and gear were also eliminated because of void-filling properties of the adhesive. A savings of \$56.37 per thousand assemblies resulted.

Company after company is discovering how to save money, speed production and eliminate rejects by using SCOTCH-WELD Structural Adhesives in the fabrication of their products. Perhaps these adhesives are at work right now in operations similar to yours. Find out! For free literature without obligation, write today on your company letterhead to: AC&S Division, 3M Company, Dept. SBCC-20, St. Paul 6, Minnesota.

"SCOTCH-WELD" is a Reg. T.M. of 3M Co.

ADHESIVES, COATINGS AND SEALERS DIVISION

MINNESOTA MINING AND MANUFACTURING COMPANY

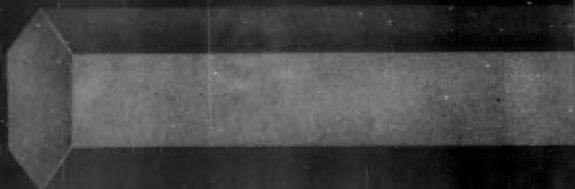
... WHERE RESEARCH IS THE KEY TO TOMORROW



For More Information about ad on facing
←page Write No. 222 on Inquiry Card—pg. 32
FEBRUARY 29, 1960

For More Information Write No. 223 on Inquiry Card—Page 32

**IMPARTIAL
ADVICE?**



**GET IT
FROM
BRIDGEPORT!**



**BRIDGEPORT
MAKES
BOTH**



BRASS

**AND
ALUMINUM**



**SCREW
MACHINE
ROD**

BRIDGEPORT BRASS COMPANY

GET **BRIDGEPORT** SERVICE ON SCREW MACHINE ROD

Your Bridgeport Salesman doesn't *push* any one metal. He knows that brass is best for some applications... aluminum for others. And as one screw machine expert to another, he'll advise you on the metal that's best suited to your *needs*. He's worth talking to. His advice is backed by more than 94 years of Bridgeport experience in developing metals for the screw machine industry.

He'll promise you fast service... and you can depend on it. Bridgeport's coast-to-coast network of warehouses and mills offers both brass and aluminum screw machine rod—and tube—for immediate delivery. For full details, call your nearest Bridgeport Sales Office. Or write direct.

ALUMINUM SCREW MACHINE ROD

Advantages: light weight and low cost—3 times as many pieces per pound; high strength; fine finishing qualities; excellent machinability—low tool wear; excellent corrosion resistance; non-sparking and non-magnetic.

TYPES	Round and Hexagon.
SIZES	Diameters in 1/64" increments from 1/2" to 3" in standard 12-foot lengths.
ALLOYS	2011-T3 (Standard temper—heat-treated and drawn) 2011-T8 (For applications requiring deep drilling—HT-Drawn-Aged) 2017-T4 (For applications requiring high strength) 6061-T6 (For applications requiring superior corrosion resistance) 2024-T4 (Heat treatable—for applications requiring high strength)

BRASS SCREW MACHINE ROD

Advantages: highest machinability of all—lowest tool wear of all; easiest and most beautiful finish; best corrosion and rust resistance; *highest scrap value*.

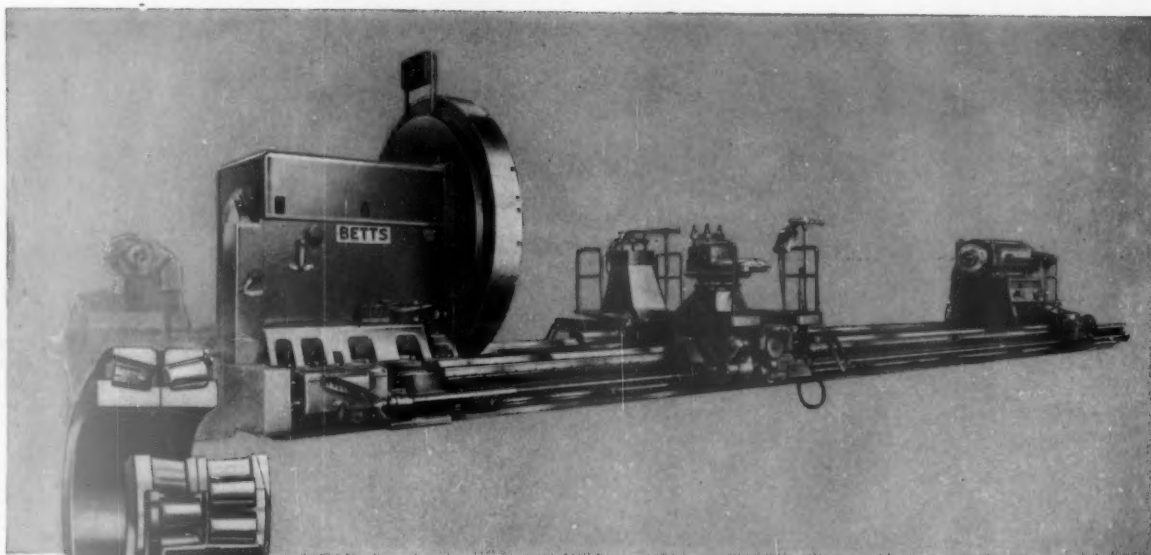
TYPES	Round, half-round, oval, square, rectangular, hexagonal and special shapes.
SIZES	Diameters from 1/16" through 3-1/2".
ALLOYS	• Free-Cutting Brass • Lead Commercial Bronze • Tellurium Copper • Sulphur Bearing Copper • Hardware Bronze • Lead Naval Brass • Aluminum Bronze • Free-Cutting Phosphor Bronze • Nickel Silver.

BRIDGEPORT TECHNICAL SERVICE can help you match the metal *exactly* to your job... help you reduce costs, improve products, solve your production problems on both brass and aluminum. Ask your Bridgeport Salesman for details. Or write direct to Bridgeport Brass Company, Bridgeport 2, Conn. Dept. 3703.

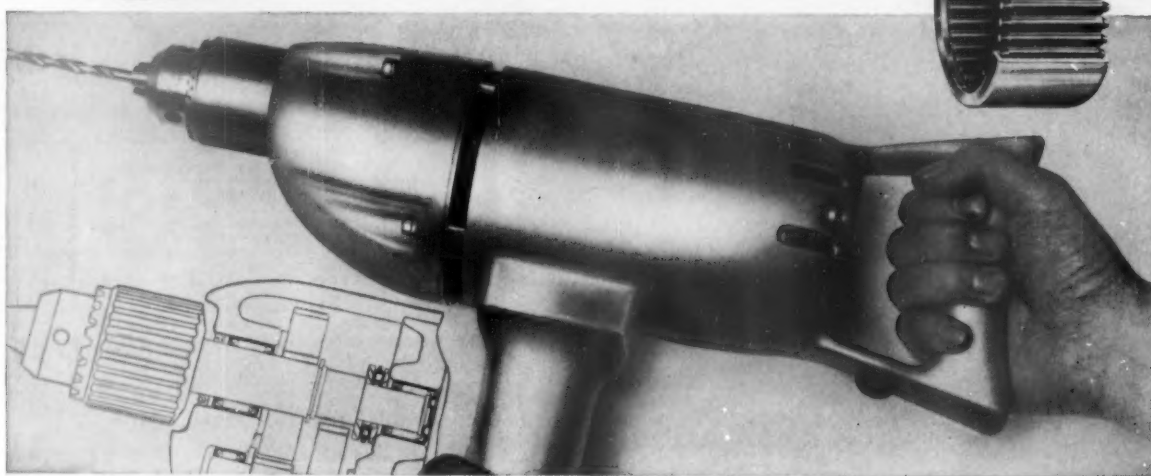


Specialists in Metals from Aluminum to Zirconium

For More Information Write No. 224 on Inquiry Card—Page 32



from machine tools... to hand drills



Torrington makes the right anti-friction bearing for every basic need!

In a huge lathe, the need may be for a five-foot diameter Torrington Tapered Roller Bearing, precise to a few ten-thousandths of an inch. In a hand drill, it may be for a compact Torrington Needle Bearing, fractions of inches in diameter for light weight and easy handling.

Whatever the requirement, large or small, special or standard, Torrington makes the right type of anti-friction bearing for your specific needs.

You can rely on the broad and diversified experience of Torrington in the design, manufacture and application of anti-friction bearings. Call on your Torrington representative for help in selecting the right anti-friction bearing for your product. **The Torrington Company, Torrington, Conn.—and South Bend 21, Ind.**

TORRINGTON BEARINGS

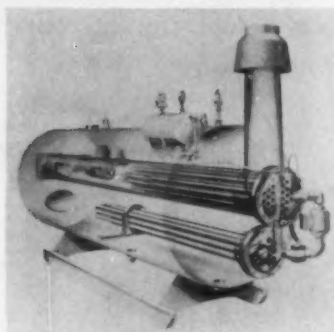
District Offices and Distributors in Principal Cities of United States and Canada

SPHERICAL ROLLER • TAPERED ROLLER • CYLINDRICAL ROLLER • NEEDLE • BALL • NEEDLE ROLLERS • THRUST

For More Information Write No. 225 on Inquiry Card—Page 32

Products

Packaged, Gas-Fired Water Heater Unit



A new indirect gas-fired storage water heater provides easy, low-cost installation and scale-free heating at top efficiency. Features include a specially designed "localized" combustion unit and high efficiency fluid-to-fluid intermediate heat transfer system. Unit is true storage heater combining indirect firing and large-volume heating of service water. A completely self-contained package, it is so quiet that it can be located near offices or other areas where quietness is required. **Patterson-Kelley Company, Inc., East Stroudsburg, Pa.**

Write No. 26 on Inquiry Card—Page 32

Infrared Radiant Heater for Industry



A new infrared radiant heater comes in units 46 in. long; it can be installed singly or in groups, on wall or suspended from the ceiling or fixed conduits. Concentrating heat on a specific spot, 1500 watt AC-DC heater is suitable for heating molds, pre-heating welds, paint drying, etc., and for providing comfort in such large areas as warehouses, truck-loading platforms, etc. Unit cannot cause "sunburn," is splash-proof and has no exposed electrical parts. **Hanovia Lamp Div., Engelhard Industries, Inc., 100 Chestnut St., Newark, N.J.**

Write No. 27 on Inquiry Card—Page 32

FEBRUARY 29, 1960

ALLEN



Allenpoint's deep, full-circle bite assures tremendous resistance to removal torque! Stays tighter longer!

When you need a set screw that you can depend on to stay tight under heavy strain and vibrations, specify ALLENPOINT. Here's why you can always depend on ALLENPOINT: proper design of the cup diameter results in a rugged grip that makes the full-circle pattern you see here... deep, strong, clean sockets allow full wrenching leverage... and uniform Class 3A threads assure a tight friction lock over the entire length of Allenpoint Set Screws.



Ask your ALLEN Distributor for samples and full engineering details—he's always ready, willing, and able to give you prompt, practical service!



ALLEN MANUFACTURING COMPANY

HARTFORD 1, CONNECTICUT, U.S.A.

For More Information Write No. 226 on Inquiry Card—Page 32



Improve your list of suppliers with

Conover-Mast Purchasing Directory



With a good industrial directory you can be certain your company is buying from the best suppliers. By checking CMPD you eliminate the chance of overlooking important sources of supply.

CONOVER-MAST PURCHASING DIRECTORY offers great reliability. The addition of telephone numbers makes CMPD the most up-to-date buying directory published. Telephone numbers give you a convenience found in no other general industrial directory.

Because CMPD lists only products used by industry, you find the sources you want quickly and easily.

Conover-Mast Purchasing Directory

205 East 42nd Street • MUrray Hill 9-3250 • New York 17, N. Y.

For More Information about ad on facing
page Write No. 227 on Inquiry Card—pg. 32→

PURCHASING



an education in itself—

“The gleam of Stainless Steel”

displayed at your favorite store

As one in the metals fabricating business—whether design, production or purchasing—you'll have a special interest in the stainless products for the home now featured at your leading store. The eye-opening promotion of variety, beauty and utility in stainless home products today is doubly impressive to the man who sees the technical accomplishments behind the glamor. • Many of the pieces will have been crafted from SUPERIOR Stainless Strip Steel—chosen for uniform highest quality in every coil. Specify it safely for your strictest demand.

Superior

STAINLESS STRIP STEEL



SUPERIOR STEEL DIVISION

OF
COPPERWELD STEEL COMPANY
CARNEGIE, PENNSYLVANIA

Office Equipment and Supplies



Light-weight pigskin **pocket** case holds slide-rule, pen and pencil. The large steel clips are encased in leather to protect shirt pocket from stains and soils. An extra compartment in back of case holds notepad or letters. A low-cost item, it is available directly from the manufacturer, **Remco Products, 1641 South Avenue, Rochester 20, N. Y.**

Write No. 28 on Inquiry Card—Page 32



Complete new line of **stencil duplicators** was recently introduced by **The Gestetner Duplicator Corp., 216 Lake Avenue, Yonkers, N.Y.** It includes both electric and hand operated models, enabling the purchasing agent to select the model that best meets his requirements. All the new machines accommodate sheets as large as 10" x 15".

Write No. 29 on Inquiry Card—Page 32

Slide rule comparator listing complete details on **office copying machines** made by ten different manufacturers is available free from **Minnesota Mining and Manufacturing Co., 900 Bush Ave., St. Paul 6, Minn.** It is designed to aid the purchasing agent in his selection of the proper copying

equipment. The comparator contains information on machine and paper costs, types of copying processes, number of copies possible per minute, number of processing steps as well as details on nine other categories.

Write No. 30 on Inquiry Card—Page 32



Fire-resistive file drawers are available in both letter and legal sizes from the **John D. Brush & Co., Inc., 545 West Avenue, Rochester 11, N.Y.** The new file cabinets are equipped with a general lock controlling all drawers, as well as independent thumb latch to hold the drawer in a closed position. Drawer heads are of tongue and groove construction to prevent direct passage of heat, and all drawers are separated by insulated partitions.

Write No. 31 on Inquiry Card—Page 32

A new, free booklet provides purchasing agents with some detailed answers about **steel office furniture**. Entitled, "Suggested Specifications for Top Quality Steel Desks and Filing Cabinets," the booklet includes such data as: the gauge of steel recommended for exterior surfaces and unexposed parts, types of top fasteners preferred on desks, testing procedures for desks and files, drawer slides, lock mechanisms, and many other construction details. Copies of the booklet may be obtained from **Bentson Manufacturing Co., Aurora, Ill.**

Write No. 32 on Inquiry Card—Page 32



Fully automatic dial telephone system for **internal communication** can be installed at a low cost. The new system is produced by **DuKane Corporation, St. Charles, Ill.** It is designed to fill the needs of small business, or to provide internal communications wholly within departments of larger organizations. Two to ten lines are possible. To reach any other phone in the system, the user simply dials a single digit. The system is offered for outright purchase, rental, or on lease-rental plans.

Write No. 33 on Inquiry Card—Page 32



Large **re-usable envelopes** have been designed with features for controlling and keeping together all materials for individual jobs and projects while they are in process. A product of **The Job-N-Velope Company, 154 Nassau Street, New York 38, N. Y.**, it is constructed of reinforced heavy-weight red rope wallet stock. Two brass eyelets hold a prong paper fastener to which is attached a job ticket. It measures 23" x 16½".

Write No. 34 on Inquiry Card—Page 32

For More Information about ad on facing page Write No. 228 on Inquiry Card—pg. 32→

THE CARD WITH SPECIAL BACKING

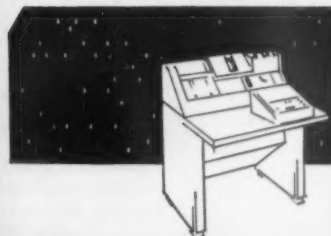
IBM design, quality and service

DESIGN—the right design is essential to efficient data processing. From IBM's tremendous selection of standard and special cards, card sets, continuous forms, checks and special card features . . . skilled personnel, in one of IBM's many Card Design Centers, blend just the right elements into a design to best meet your specific needs.

QUALITY—for smooth-flowing, economical data processing, your punched cards must consistently meet the requirements imposed by your data processing machines. All IBM cards are made to the most exacting specifications by thoroughly trained personnel working with the proper tools. Every step in their manufacture is governed by a quality control program without parallel in the industry.

SERVICE—prompt, efficient and economical service is important with any product. Through its nation-wide network of card plants and warehouses . . . and through its supplies specialists and sales representatives, who know both card and machine requirements . . . IBM can service properly any customer in America.

This special backing makes the IBM card a value unsurpassed in the industry . . . and represents one more example of the way IBM helps you to enjoy Balanced Data Processing.



IBM®

SUPPLIES



Here's the copier that makes folks quit shopping around!

Only \$99.50 . . . yet Kodak's Verifax Bantam Copier outperforms other office copiers costing up to 4 times as much. It copies all types of writing, typing, printing—gives you 5 dry, easy-to-read copies in 1 minute for 2½¢ each. Makes copies on one or both sides of bond-type paper, in choice of white and 7 other colors. Also, makes copies on card stock or printed office forms—even makes translucent whiteprint masters.

Phone local Verifax dealer for demonstration (see Yellow Pages under duplicating or photocopying machines), or write Eastman Kodak Company, Business Photo Methods Division, Rochester 4, N. Y., for booklet describing all Verifax Copier models.

Price quoted is manufacturer's suggested price and subject to change without notice.

Verifax Copying ...DOES MORE...COSTS LESS...MISSES NOTHING

Kodak
TRADE MARK

GUARANTEED BY

EBERHARD FABER



LONG INK CARTRIDGE...

LONG WRITING LIFE...

LOTS MORE ON THE BALL!

NOBLOT ERASATIP DESK BALL PENS by EBERHARD FABER write longer! That's because NOBLOT's ink supply runs the full length of the pen, thanks to its new extra-long ink cartridge. You get a smooth writing ball point and fast acting ball pen eraser, too!

There's a NOBLOT for every writing need—over 40 models in all! Choose from a wide range of ink colors and ball points for **your** needs. There's no leak...no fade...no smear...no transfer!

Contact your nearest stationery supplier for NOBLOT ball pens by EBERHARD FABER—your one source of supply for all writing needs.

Only 29¢...Less in quantities!



SINCE 1849

EBERHARD FABER

puts its Quality in writing

Tm. Reg. U.S. Pat. Off. and Other Countries

Wilkes-Barre, Pennsylvania-New York-Toronto, Canada

For More Information Write No. 230 on Inquiry Card—Page 32

FEBRUARY 29, 1960

119

Scripto

S.P.O.* BALL PEN

"SPECIALIZED PLANT AND OFFICE"

Saves 50% on costs

...proved in exhaustive operating tests

When it comes to business, Scripto S.P.O. saves a good 50% of the costs of other pens recently tested for economy and efficiency. In a relentless marathon writing test Scripto won on all counts ... 1. *Uniformity of writing.* 2. *Economy of ink consumption.* 3. Lowest "operating costs" of all pens tested—a full 50% lower!

**Here's the record:
The cost for 20 miles of
non-stop writing**

SCRIPTO S.P.O.	\$1.43
BRAND "A"	2.82
BRAND "B"	3.29
BRAND "C"	3.66

Even on cost of refilling, Scripto proved better than 50% more economical. (Two other brands tested weren't refillable at all). Scripto Ball Pen with complete choice of points for general office, stenographic, accounting, etc. Full size refills cost less than 10¢ each in dozen lots. Completely leakproof and specially low priced for office use. Ask your stationer for quotations.

**A complete service
with all these
accessories:**

- Economy priced desk base.
- Memo pad and pen holder



**SCRIPTO now serves industry
with the best in writing...at any price!**

Scripto, Inc., P. O. Box 4847, Atlanta 2, Georgia, U. S. A.

For More Information Write No. 231 on Inquiry Card—Page 32

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Office Equipment

Handbook designed to show the extensive capabilities of today's **duplicating processes, machines and papers** is being offered without charge by **Champion Paper Specialties, Inc., Hamilton, Ohio.** The spiral bound, tabbed edition is called, "Better Processing With Your Duplicating Department." It is divided into six sections: Major processes, Duplicator manufacturers, The paper story, Production samples, and Helpful hints. There is also a list of terms and definitions of particular interest to duplicator users.

Write No. 35 on Inquiry Card—Page 32

Simple instructions on **how to multiply and divide** with a standard adding machine are offered without charge by the **Victor Adding Machine Co., 3900 N. Rockwell, Chicago 18.** The method requires only a few minutes to grasp and can save hours of figure work. Examples show how the method may be adapted to various multiplication and division problems.

Write No. 36 on Inquiry Card—Page 32

Ways in which purchasing agents in a number of businesses are using **Verifax Copiers** to speed basic purchasing-receiving operations while cutting costs and eliminating errors are outlined in a new leaflet available from **Eastman Kodak Company, Rochester 4, New York.** The leaflet describes applications where clerical time can be saved. It also outlines a purchasing-receiving system based entirely on the use of copying machines.

Write No. 37 on Inquiry Card—Page 32

New high-speed dispenser for pressure-sensitive pin-feed labels was recently developed by **Allen Hollander Co., Inc., 385 Gerard Avenue, New York, N. Y.** Labels which have been imprinted on data processing equipment can now be applied at speeds up to 3000 per hour. Dispensing of the labels is controlled by a foot pedal, leaving both hands free to handle the material to be labeled.

Write No. 38 on Inquiry Card—Page 32

Trade journals, bulletins, reports and other valuable industrial reference material can now be filed in an orderly, attractive manner. The files have the appearance of hand-bound books, covered with durable, simulated leather material. They are available in various sizes to fit magazines, or to accommodate reports and other data. **Edmund Scientific Co., Barrington, New Jersey** is the manufacturer.

Write No. 39 on Inquiry Card—Page 32

Introduction of a restyled, modern design **portable typewriter** was recently announced by **Remington Rand Division of Sperry Rand Corporation.** Because of its design and specially constructed frame, the new portable will not creep away while typing on it. It is available in two-tone pearl and charcoal gray and comes with carrying case.

Write No. 40 on Inquiry Card—Page 32

PURCHASING



The Call Director telephone is available in 18-button and 30-button models—in green, gray or beige.

Just look at the ways you can use the Call Director telephone to increase operating efficiency and profits...

- You can talk with others in your office, store or plant by merely pushing a button or dialing a number. If you get a busy signal, a special "camp-on" feature automatically connects you when the line is free.
- You can add another inside person to an outside call and have a three-way conversation. You save the time and bother involved in transferring calls back and forth.
- You can set up a telephone conference with as many as six people—at

the touch of a button. Several different conference groups can be arranged. No need to reserve meeting rooms. No lost time in corridors and elevators. You get down to business *fast* by phone, right at your desk.

- You can have as many as 29 outside, extension or intercom lines at your fingertips all the time. You get more done, because you don't have to leave your office so often.

Never before could a business phone serve you so effectively!

Learn how the new Call Director telephone with Bell System intercom can

be tailored to your firm's exact needs and improve its profit picture. Just call your Bell Telephone business office, and a Bell representative will bring you the whole story. No obligation.



This six-button telephone also offers a range of flexible intercom features.

BELL TELEPHONE SYSTEM



Chemical Buyers Look



at Chicago

Chet Jones (left) of Diamond Alkali and Sargent Chamberlain, O. M. Scott and Sons talk shop at the get-together the evening before.



Mr. Moderator himself, Fred Schmitt of Merck Chemical Div. makes sure the round table discussion leaders know the plans. Glenn Reiner of Abbott Laboratories, chief discussion leader for the Chicago meeting is at right.



Round table discussions on evaluating foreign and domestic chemical suppliers occupied the afternoon sessions.

An exciting new decade was prophesied for chemical buyers at a recent conclave in Chicago, and at a duplicate session held the following week in New York.

Outstanding speakers brought this prophecy to the Chemical Buyers Group of the National Association of Purchasing Agents at their midwinter meetings. The theme for this annual event was, "Chemical Buyers Prepare For the 60's."

The program included Dr. John Hoagland, College of Business and Public Service, Michigan State University, and Harold Gibson, technical manager, Overseas Operations Division, International Minerals & Chemical Corp.

The one-day affair opened with a talk by Robert R. MacIver, assistant general counsel, Columbia Southern Chemical Corp. He discussed, "Antitrust Pitfalls: How To Recognize and Avoid."

"My principal purpose," said Mr. MacIver, "is to emphasize that we appear to be entering an era of stepped-up enforcement of the anti-trust laws together with a trend toward more and more



Jack Schneider of Eli Lilly (r.) enjoys his joke as do (l. to r.) Carl Hulen of Lynn Chemical, Clair Brissette and Don Ewing of Parke Davis.

into the 60's

severe penalties.

"This trend will probably continue regardless of election results as both major parties are committed to programs calling for vigorous enforcement of these laws."

Dr. Hoagland, second speaker on the morning program, called for more college and university courses in procurement. He placed the blame on purchasing agents for not making certain that purchasing courses were available to today's students.

Raise the Dues

He also called for an increase in dues for the National Association of Purchasing Agents. "You are pikers when it comes to dues. Why not double your dues and let the Association do some work."

A provocative picture of "The Changing World Chemical Industry and Its Impact on The Chemical Buyer," was given by Harold Gibson of International Minerals.

Mr. Gibson drew on his own and his company's vast experiences in the world market. He cited the changing world itself, formation of new trading blocs, and new sources of raw materials as some of the prime reasons for the anticipated change in the chemical industry.

Have Foreign Tie-ups

"Trading blocs have stimulated the chemical industry and changed its pattern by construction of new facilities. Not a week goes by without tie-ups of U. S. companies with German, Italian or U.K. chemical companies."

J. W. McNeil, Pittsburgh Coke and Chemical Company was general chairman for the meeting, assisted by Joseph H. Saville, American Viscose Corp., as program chairman.

at New York

J. W. McNeil (left), Pittsburgh Coke & Chemical Co., talks with committeemen, C. F. Teeple, International Minerals and Chemicals, and A. M. Egge-man, Witco Chemical Company.



"Stimulating innovation" was the description given to the afternoon session. Participants were very serious about solving the problem on evaluation of foreign and domestic suppliers.



J. M. Brady (left), S. B. Penick & Company, shows two discussion leaders the results of Chicago round table meeting.

Synthane makes and fabricates laminated plastics



Why worry about fabricating laminated plastics? That's our job.

There is not much point to fabricating laminated plastics in your own shop. And there are good reasons why. One is the material itself.

Synthane laminates are available in sheets, rods, and tubes, and in over 33 standard grades. Choice of form and grade for your part is important. For example, a part which is basically tubular may have to be

cut from a sheet rather than a tube. Or the material itself may have to be modified in order to meet your requirements.

When you do your own machining, responsibility rests finally with you. The possibility of errors in dimensions, machining and tolerances, and of waste and delay suggest that you buy your laminated plastics from us

and let us do the fabricating for you. Call any of our representatives—in principal cities—for a quotation or get in touch directly with Synthane Corp., 7 River Road, Oaks, Pa.

SYNTHANE
CORPORATION  OAKS, PENNA.

Sheets • Rods • Tubes • Fabricated Parts
Molded-laminated • Molded-macerated

You furnish the print . . . we'll furnish the part

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For More Information about ad on facing page
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PURCHASING



in
forgings...

d'ARAZIEN

Alcoa puts the metal where you want it

More than a hundred tons of Douglas DC-8 kiss the runway on forged aluminum wheels like this one. Strength and lightness are obvious requirements. Even more essential is reliability through landing and after landing to guard the safety of passengers and crew.

Logically enough, rugged aluminum forgings were elected for the job. Then came many hours of Alcoa skill in die design, demonstrated in the remarkable zebra stripes visible in the cross section. They represent the aluminum grain flow* and illustrate how the tough aluminum grain is forged to withstand the shock loads of landing impact, plus the cyclic fatigue of rotation, all with a wide margin of safety.

Alcoa forges these wheels with a unique combination of blocker and finishing dies to put the metal exactly where it's needed. Alcoa Alloy 2014-T6 assures excellent machinability for the designer and producer, Bendix Products Division, Bendix Aviation Corporation. And

Alcoa's forging plants, with hydraulic press capacities up to 50,000 tons, provide on-the-nose deliveries.

Think of Alcoa® Forgings when strength and lightness are rigid design requirements. Producing a complete line of forgings, Alcoa forges more large and complex shapes than any other supplier. Aluminum Company of America, 919 Alcoa Building, Pittsburgh 19, Pennsylvania.

**The patterns shown in the illustration were produced in Alcoa's Research Laboratories as part of a study of grain flow developed by the dies used to forge the DC-8 wheel.*

Alcoa puts the metal where you want it—in castings, forgings, impacts, extrusions and screw machine parts.



For exciting drama watch "Alcoa Presents" every Tuesday, ABC-TV, and the Emmy Award winning "Alcoa Theatre" alternate Mondays, NBC-TV

Your Guide to the Best in Aluminum Value

Utility Buyers Call For Realistic Pricing

SUPPLIER PRICING POLICIES, foreign competition, and new developments in equipment and materials dominated both public and private discussions at the recent two-day meeting of the Public Utility Buyers' Group in Atlanta.

George H. Cole, manager of purchases, Alabama Power Company, met a touchy question head-on with his opening day talk on "Artificiality of Pricing Structures." Mr. Cole declared that utility purchasing agents are concerned about the "increased artificiality in pricing practices" among equipment manufacturers.

Pass on Savings

Mr. Cole pointed out several common situations in which equipment makers could lower prices to customers: when transactions have been carried on directly between the manufacturer and the utility, and no distributor is involved; when uniform prices are quoted over a wide geographic area include substantial charges for freight; when a customer buys large quantities of certain items, enabling the manufacturer to realize production economies.

Implied warnings to American

manufacturers to face up to foreign competition came from N.A.P.A. President T. O. English and Mark Covell, superintendent of supply service, Union Electric Company. Mr. English said that not only low labor costs but favorable treatment from their governments was giving overseas manufacturers the edge over many U.S. producers. "Some governments rebate taxes to firms that sell here, while manufacturers in the United States have been forced to shave profits," he said. Mr. English added that American industry should work for lower taxes, while cutting overhead as much as possible.

Mr. Covell said that buyers want economically healthy suppliers, but it is not the basic "responsibility of the buyer to assist the supplier in his competitive problems."

President English also called for more political action on the part of purchasing agents, particularly in respect to "ill-conceived and dangerous legislation that is aimed at big companies, but which would hopelessly trap the little ones."

He reported that the District Councils of N.A.P.A. were now discussing the possibility of form-

ing a Board of Basic Policy that would determine and publicize the national association's views on legislation.

Uneven Road Ahead

C. F. Ogden, chairman of N.A.P.A.'s Business Survey Committee, reporting on the business outlook, said "there's a boom ahead, but the economic climb in the '60s will not be steady and uninterrupted." C. W. Mills, Westinghouse Electric Corporation, spoke on "Obtaining Value for Your Electric Utility Dollar." Scheduling and pricing problems on heavy electrical equipment and steam generators were discussed by William S. Ginn, General Electric Company, and Donald S. Walker, Combustion Engineering, Inc. Oliver D. Butler, assistant director of purchases, Commonwealth Edison Co., spoke on Escalation."

Joseph B. Homsher, chairman of the Public Utility Buyers' Group, opened the meeting, and Joseph C. Reeves, president of the Purchasing Agents Association of Georgia, gave a brief welcome. John R. Carmichael, manager of purchases and supplies, Georgia Power Co., was general chairman.



George Cole: "We need more realistic pricing policies . . . on electrical equipment."



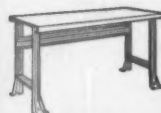
Bill Allen of Salt Lake City (l.) reacts with genial skepticism to a supplier's comments.



Waiting in the wings as the program gets under way: Mark Covell and Tom English.



You can't equal
HALLOWELL
 for built-to-order convenience
 in standard units



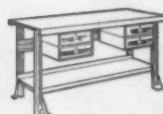
basic open bench



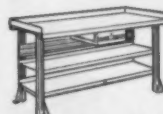
with single drawer



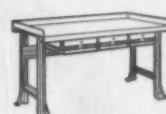
with top shelf, backboard, and pieces, single drawer, tie bars



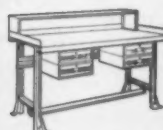
with two 2-drawer units



with two shelves, single drawer



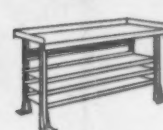
with backboard, and pieces and three single drawers



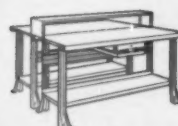
with top shelf, backboard, and pieces, two 2-drawer units, footrest



with top shelf, two 3-drawer units



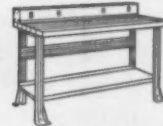
with three shelves



back to back, single drawers, common top shelf



with two 3-drawer units, footrest



with laminated wood top, electrical panel.

Only Hallowell offers such a variety of lengths, widths, tops, heights, and so many accessories. Best of all, rugged Hallowell units can be tailored to your needs *immediately*, from stock! Specify Hallowell Benches for complete adaptability now . . . and for years to come.

Mail coupon today for **FREE** Catalog

COLUMBIA-HALLOWELL Division SPS

Jenkintown 31, Pa.

Please send me the Hallowell full line catalog.

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 (Please Print)

Company.....

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2103, 2299

COLUMBIA-HALLOWELL Division **SPS** JENKINTOWN 31, PA., SPS WESTERN, SANTA ANA, CAL.
 where reliability replaces probability

For More Information Write No. 235 on Inquiry Card—Page 32

FEBRUARY 29, 1960

127

*The shrill sound of a horn
echoes in every shaft
to guard this mine's air supply against...*

CUTOFF!

This is a Pennsylvania coal mine.

Deep down in the earth, hundreds of men are working at the raw sides of jagged black tunnels.

At the surface, three giant fans—each remotely situated in the surrounding countryside—send fresh air sprawling through the many miles of entryway.

The link between man and fan is 4½ miles of Rome control cable!

Engineers at this mine* selected Rome control cable for the nerves of a meticulously engineered control system that guards the mine's vital air supply. A winking light in the control room means everything is running smoothly. *But...*

A shrieking horn means trouble! Before gases can accumulate in the mine—jeopardizing the lives of hundreds—repair crews get the signal and start patching up the failing fan.

Cable for a control system such as this must be the ultimate in reliability. "We've had experience with Rome's borehole cable

and other types of Rome cable," says the chief outside electrician, "so I recommended Rome's control cable for this important job."

It went up very quickly—a crew of seven strung the first 16,000 feet over rugged, wooded and hilly terrain in only 14 days. That's *half* the time such an installation normally takes. The reason? Rome supplied a factory-assembled self-supporting-type cable to save the time and expense of on-the-job assembly.

You depend on cable, too. Just as this coal mine relies on cable to breathe, your plant relies on cable for production—to drive machines and other plant equipment. Like the mine, you can't afford to take chances on power failures.

Rome Cable manufactures various types of thermosetting and thermoplastic control cables to meet specific electrical, environmental, installation and economic requirements. Call your nearest Rome Cable salesman today for help in selecting the precise cable you need.

*Name of mine furnished on request.



**MEET
THE
MAN**

WHO'S DEDICATED
TO YOUR JOB
YOUR ROME CABLE
SALESMAN

ROME CABLE
DIVISION OF **ALCOA**





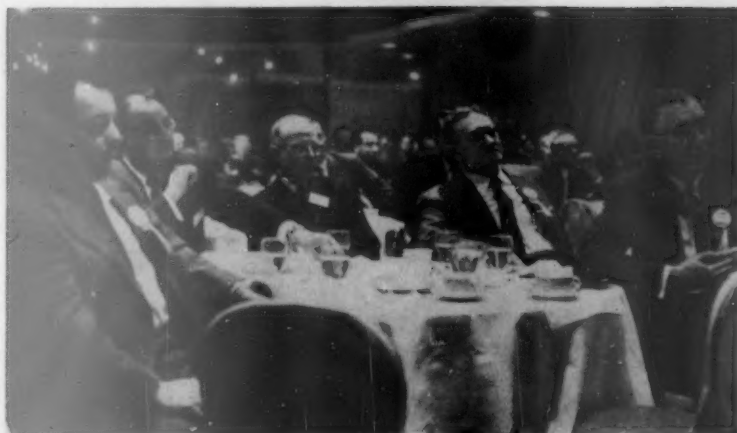
Association News

Through the eye of PURCHASING'S Camera



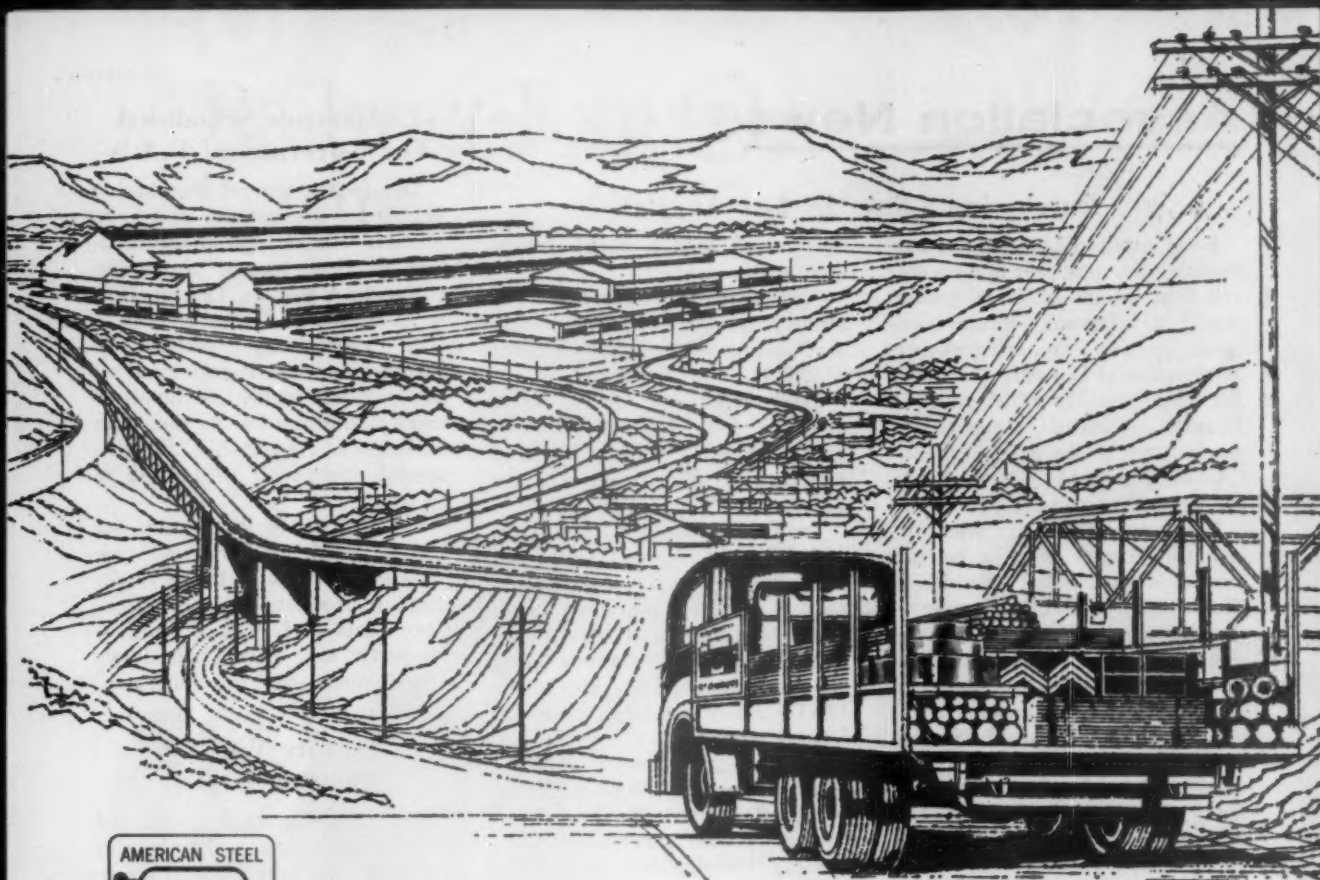
MEMPHIS—T. O. English, Alcoa, president of the National Association of Purchasing Agents, leads the way past the chef. Close behind are S. L. Jackson, Humphreys Gold Corp., District Seven vice president; N. G. Tivers, Davis-Weil Mfg. Co.; and E. J. Adams, American Snuff Co., president of the Purchasing Agents Association of Memphis.

SAN DIEGO—Aircraft committee members discuss their mutual problems prior to regular monthly meeting. They are (left to right): M. Kidder, Convair; T. N. Houk, Convair; F. G. Blakefield, Convair Astronautics; Harry Moore, Rohr Aircraft; Max Vicker, Convair Astronautics; R. J. Rucci, Rohr Aircraft; J. F. Hopkins, Convair; and B. F. Fennimore, Rohr Aircraft.



NORTH JERSEY—Listening intently at a recent meeting of the North Jersey Association of Purchasing agents were (left to right): Sam Stein, Resistoflex Corp.; Roscoe Moore, Peter A. Frasse & Co.; Paul Murphy and Fred Esser, Westinghouse Elec. Corp.; and Frank Curran, S. Blickman, Inc.

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PURCHASING



Symbol for Savings

In back of this symbol is a unified campaign to make every steel service center more efficient and more productive, for you. Today's **Modern Steel Service Center** enables you to:

REDUCE CAPITAL EXPENDITURES

You can operate with realistic inventories, freeing capital for more profitable purposes.

REDUCE OPERATING COSTS

Stacking, sorting, storing, cutting—every operation on a piece of steel adds to operating costs. Modern Steel Service Centers eliminate many pre-production services, and do the needed ones economically because their equipment and specialized manpower are used full time.

REDUCE OVERHEAD COSTS

Obsolescence, taxes, insurance, accounting, rent, heat, light—all overhead items which are too easily forgotten although they add to production costs. Modern Steel Service Centers eliminate these costs to you.

*Using a Modern Steel Service Center is Like
Adding a Money-Making Department to Your Plant*



Plants and Service Centers:
Los Angeles • Kenilworth (N. J.) • Youngstown • Louisville (Ohio) • Indianapolis • Detroit



STAINLESS
SHEET • STRIP • BAR • WIRE

Jones & Laughlin Steel Corporation • STAINLESS and STRIP DIVISION • Box 4606, Detroit 34

Association News

Purchasing Clinic in Los Angeles

Four hundred Los Angeles purchasing men took part in a notable self-help program. This professional development clinic sponsored by the Purchasing Agents Association of Los Angeles, under the chairmanship of Arthur G. Pearson, consisted of a series of six lectures on the general theme, "A Management Approach To Selected Procurement Problems."

Enrollment this year was one-seventh greater than even last year's enthusiastic attendance. The clinic required each man to devote two and a quarter hours one night a week for six consecutive weeks.

The management approach was opened by Dr. Harold Koontz, professor of business policy, University of California, on the subject, "Your Job."

Robert J. Barry, president of Barry and Co., spoke on, "Management's Approach To Inven-

tory," and lead a panel discussion on the subject.

"Management Programs For Profit Improvement" was the topic of George Aljian, vice president of C & H Sugar Refining Co.

L. H. Miles, manager of value analysis for General Electric, demonstrated techniques and management viewpoints on the subject of "Value Analysis."

Frank C. Walters, consultant and formerly N.A.P.A. data processing chairman collaborated with H. Warren White, of Lockheed Aircraft, and Joe A. Podovani, of Columbia-Geneva Steel Co. in "Bringing Data Processing Up-To-Date For Large And Small Departments."

William T. Reynolds, director of purchases, Los Angeles Metropolitan Transit Authority, closed the series with a review of purchasing development and "Development of Executives."

Conference Scheduled For Government P.A.'s

The fourth annual Purchasing School for county, city and town officials will be held at the Institute of Government, University of North Carolina, Chapel Hill, N. C. on March 3 and 4.

A preliminary session is planned for recently appointed officials. It will be held in the afternoon of the day before the main conference. Registration for this special event will be limited to 15 persons.

Some of the topics planned for two-day affair are: Buying Automobiles and Trucks; Legal Workshop; Reproduction and Duplication; State and Federal Surplus Property; and Fair Trade Laws and Governmental Purchasing.

Tri-City Will Be District 3 Host

The Tri-City Association of Purchasing Agents will be host to the District Three Council meeting on March 18 in Davenport, Iowa.

Delegates will attend from the entire district which extends from Duluth to St. Louis and from Denver to Milwaukee and Chicago.

The meeting will be conducted by William M. Davis, Macomber, Inc., who is District Three vice president.

Federal P.A.'s From No. Calif. Discuss Transportation

After a purchase is made, how does it get to its destination quickly, safely and at the least cost to the government? Members of the Federal Procurement Officers Association of Northern California learned the answer to this question at a recent meeting.

Mrs. Helen M. Willey, chief of traffic for San Francisco Ordnance District drew from her wealth of experience to supply the details. At one time Mrs. Willey was responsible for the movement of millions of tons of material for the old War Assets Administration and Lend Lease.

What does your towel service cost?

You can raise the standard of service...yet reduce the cost by using

Mosinee Turn-Towels!



- ① 417 towels per roll mean less cabinet filling
- ② Push button control means 40% to 50% less towels used
- ③ Pure sulphate towel means fast drying — extra strength
- ④ Fewer towels used mean less washroom maintenance

Write for name of nearest distributor



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Railway Express lowers rates



when you combine weight

New Railway Express rates on multiple shipments can save you up to 50% or more! The rates apply to shipments of 300 lbs. and over on a wide variety of commodities . . . to shipments of 1000 lbs. and over on many other commodities. You can ship to as many consignees as you wish . . . can ship charges prepaid or collect.

Railway Express gives you service no other organization can match. Look!

- Nationwide coverage to 23,000 communities in the U. S.
- International service to and from almost anywhere in the world
- Unified, one-carrier responsibility all the way
- Door-to-door delivery at no extra charge (within authorized limits)
- Special low rates on many commodities
- The kind of transportation that best suits your particular needs

We're busy as beavers putting into effect new incentive rates to solve your "small shipment problems." Next time you order or ship, specify Railway Express.



"How Value Analysis picked our all competition at



Elden L. Anker, Vice President-Marketing of Bay State Abrasives, is a man who knows the industry through years of experience both in working in the field with Bay State customers and from close association with the research and development programs at Bay State's manufacturing headquarters in Westboro, Mass.

"Purchasing Agent C. C. Gash of Omaha Steel has a strong preference for *testing* over *talking* when it comes to choosing between several competing products. This is perfectly logical when you realize that Omaha Steel is one of the largest and most diversified processors of structural steel, weldments and steel castings in the entire western area of the United States. Mistakes cost plenty when you buy in quantity so it *pays* to test manufacturers' claims against actual performance.

"Working with Cleaning Room Foreman Otis Bundy, Gash ran a series of tests recently to find the best possible wheel for finish-grinding steel castings like the Caterpillar track-carrier castings shown here.

"Along with representatives of other major abrasive manufacturers, Bay State Abrasive Specialist Gene Miller was asked to provide wheels for testing. As Gene himself says: 'This one was a dilly. No special problem to solve and sales talk was strictly *verboten*. This was one time the wheels were on their own.'

"With Omaha's Chief Inspector Lloyd Base acting as referee, every aspect of each wheel's performance was examined, checked and double-checked. The result was satisfying all around. Bay State's standard, stock specification beat out all comers in cutting speed and length of life... and consequently cost less per hour as well as cutting down-time due to wheel changes. As Otis Bundy said: 'It stands up and it cuts fast and that's what we're looking for.'

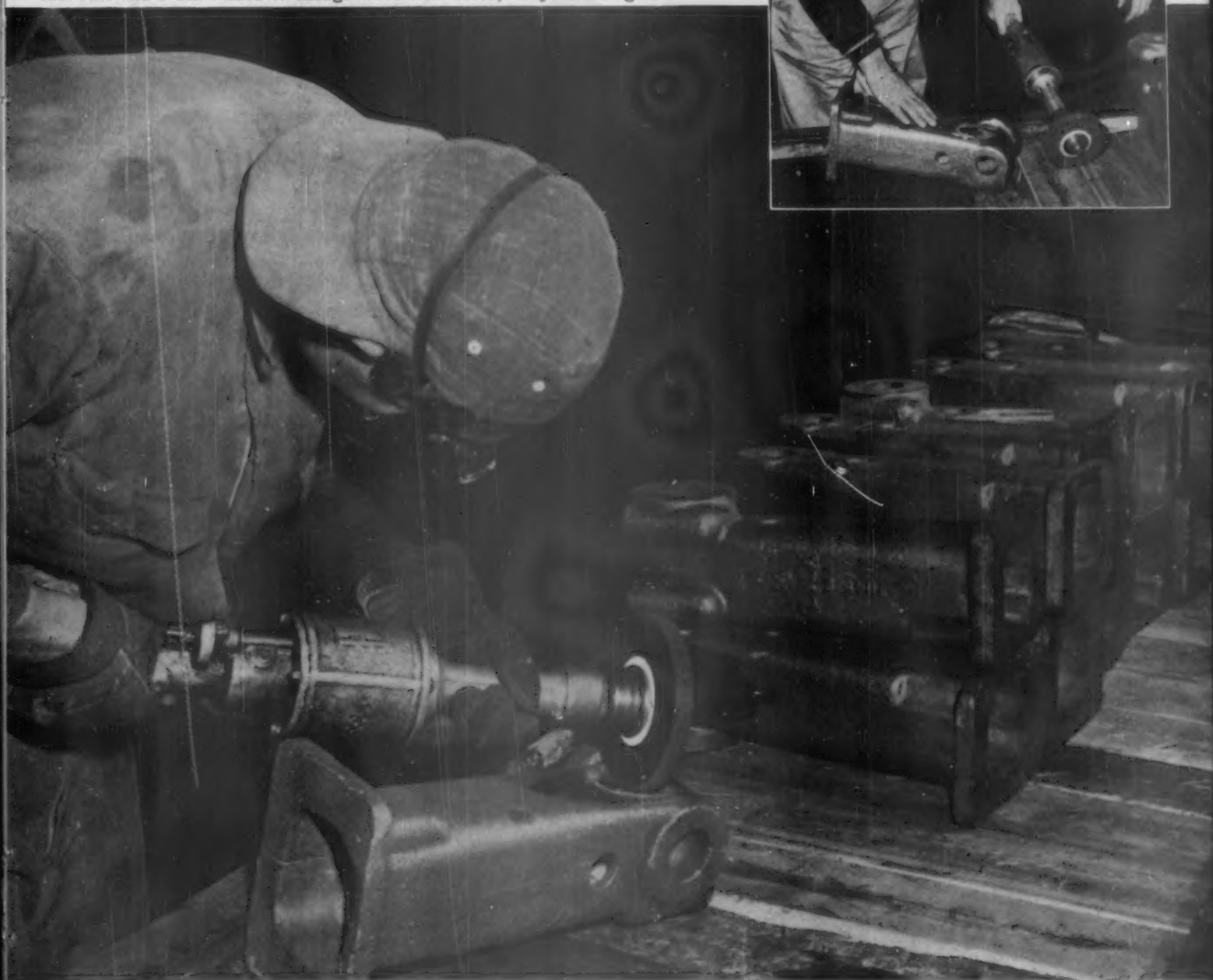
"Well, your own Bay State representative is always ready to compete on a cost basis when it comes to tests... and he's also thoroughly trained to work intelligently on the special technical problems that come up from time to time in any grinding operation. *Better grinding at lower cost... that is our business.*"

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standard stock wheel over OMAHA STEEL WORKS"

(Right) Chief Inspector Lloyd Base and Bay State Abrasive Specialist Gene Miller examine results achieved with Bay State finish-grinding wheel.

(Below) Operator Vincent Munsinger finish-grinds steel track-carrier casting with Bay State's 6 x 3/4 x 5/8 wheel on a portable air grinder. "This wheel cuts fast and I don't have to change wheels too often," says Munsinger.

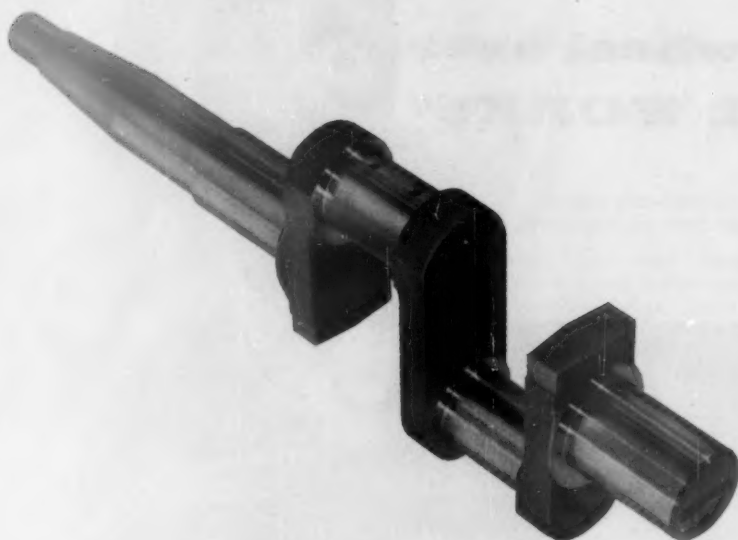


(Safety guard removed for photography)

BAY STATE ABRASIVES



Bay State Abrasive Products Co., Westboro, Massachusetts.
In Canada: Bay State Abrasive Products Co., (Canada) Ltd., Brantford, Ontario.
Branch Offices: Chicago, Cleveland, Detroit, Los Angeles, Pittsburgh. Distributors: All principal cities.



DUCTILE IRON SAVED MONEY

This seventy pound ductile iron crankshaft was made for air compressors manufactured by The Brunner Division of Dunham-Bush, Inc. The increased loads and impact resistance called for by new compressor design specifications required rigidity and strength beyond the limits of the cast iron alloy shafts formerly used. Ductile iron was chosen because the rigidity, yield strength and wear characteristics comfortably exceed operating requirements.

A major cost advantage was realized in this case. Hamilton Foundry used existing pattern equipment made for the gray iron crankshafts in the switch to ductile iron. This saved the cost of new foundry patterns and the greater cost of dies needed for steel forgings. Dunham-Bush achieved a major improvement in product performance for the modest additional cost of the metal in the castings.

When new and unusual design problems arise in the selection of metal and the casting of parts, you will find that the skill and integrity of your foundry is your best insurance that specifications—and delivery schedules—will be met.

GRAY IRON • ALLOYED IRON • MEEHANITE® • DUCTILE (NODULAR) IRON • NI-RESIST • DUCTILE NI-RESIST • NI-HARD



HAMILTON FOUNDRY INC.

1551 LINCOLN AVENUE • HAMILTON, OHIO • TWInbrook 5-7491

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Industry

New West Coast Welding Rod Plant

Production of bronze welding rods has begun at the new western plant of the **Titan Metal Manufacturing Co.**, Division of the Cerro de Pasco Corp., at Newark, Calif. The company will duplicate its complete line of welding rods now manufactured at its main plant in Bellefonte, Pa. Included are Muntz, tin bronze, and manganese bronze rods.

Raytheon Division Expands Product Lines

The Industrial Tube Division of the **Raytheon Co.**, Newton, Mass., has changed its name to Industrial Components Division to reflect the addition of new product lines. Expansion will be achieved by building a line of non-micro-wave electronic components and by broadening tube production. Initial build-up is aimed at increasing a line of electro-mechanical and electro-chemical components.

Duff-Norton to Move Two Plants

The **Duff Norton Co.**, Pittsburgh, Pa., will move its jack division from that city and its Coffing hoist division from Danville, Ill., to a new plant in Charlotte, N. C. By combining these operations the company will be able to expand both and obtain greater efficiency from consolidated engineering, order handling and purchasing functions. The forge division will remain in Pittsburgh.

Hardinge Expands Jobbing Foundry

The **Hardinge Manufacturing Co.**, York, Pa. will spend \$300,000 to expand and modernize its jobbing foundry. Enlarged facilities will include new core ovens, sand mixing apparatus, cranes and other materials handling equipment. The foundry is one of the few in the area which specializes in pit-molding. It is Meehanite licensed and also pours wear-resistant castings.

Now specify chrome plate that LASTS 30% LONGER!

New JERVIS Duplex-Nickel Process Practically Eliminates Corrosion and Tarnishing of Plated Parts

Fact: Parts that are Jervis duplex-nickel plated last up to 30% longer than ordinary one-coat nickel platings!
Fact: at least two major automotive manufacturers have specified double-nickel plating for all the chrome plated exterior trim for their 1960 model cars! Their tests have proven that it looks better, longer!

What's Special About the Jervis System?

Jervis double-nickel plating (called Jervis Duplex-Plating) is *more* than just two coats of nickel sandwiched between the copper base coat and chrome finish coat. With the duplex plating equipment, the *grain* of each nickel coating is laid at a right angle to the grain of the others, just as the wood layers in a sheet of plywood are joined with opposing grains. This grain-overlap gives extra protection to both the base metal and the fine chrome surface finish . . . practically eliminates corrosion and tarnishing . . . adds extra years of life to your plated parts.

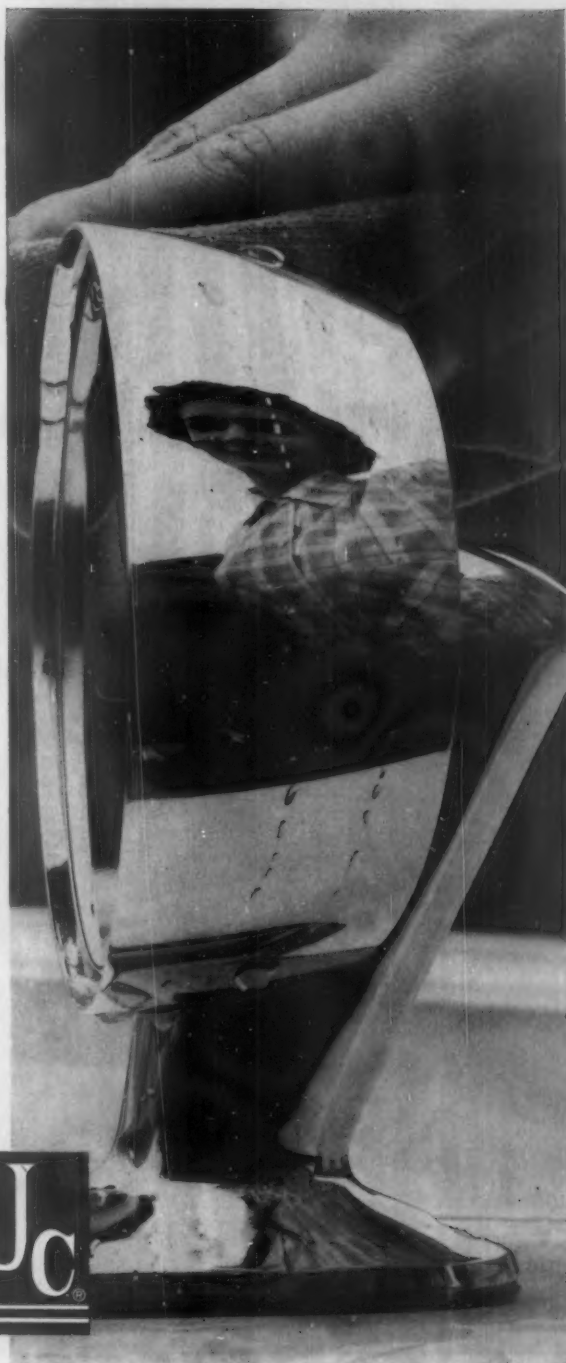
If you are a user of chrome plated parts which must stand up under severe weathering conditions or the corrosive action of salt water, contact the Jervis Corporation today. As a leading producer of plated products . . . and as a pioneer in the installation of duplex-nickel equipment . . . Jervis will provide a fast and economical answer to your plating problems.

High-Grade Plating and Anodizing of All Types

Jervis does many other types of plating and anodizing on a high-quality, high-production basis. Our equipment includes both hand-lift and automatic anodizers, automatic copper-nickel-chrome plating equipment, an automatic duplex-nickel plater, and an extensive custom brass and copper plating set-up. Solve your plating problems by asking for a Jervis bid today. And write for the free brochure "This is Jervis," describing our complete stamping, casting, and finishing facilities.

JERVIS

JERVIS CORPORATION, Dept. P, Grandville, Mich.



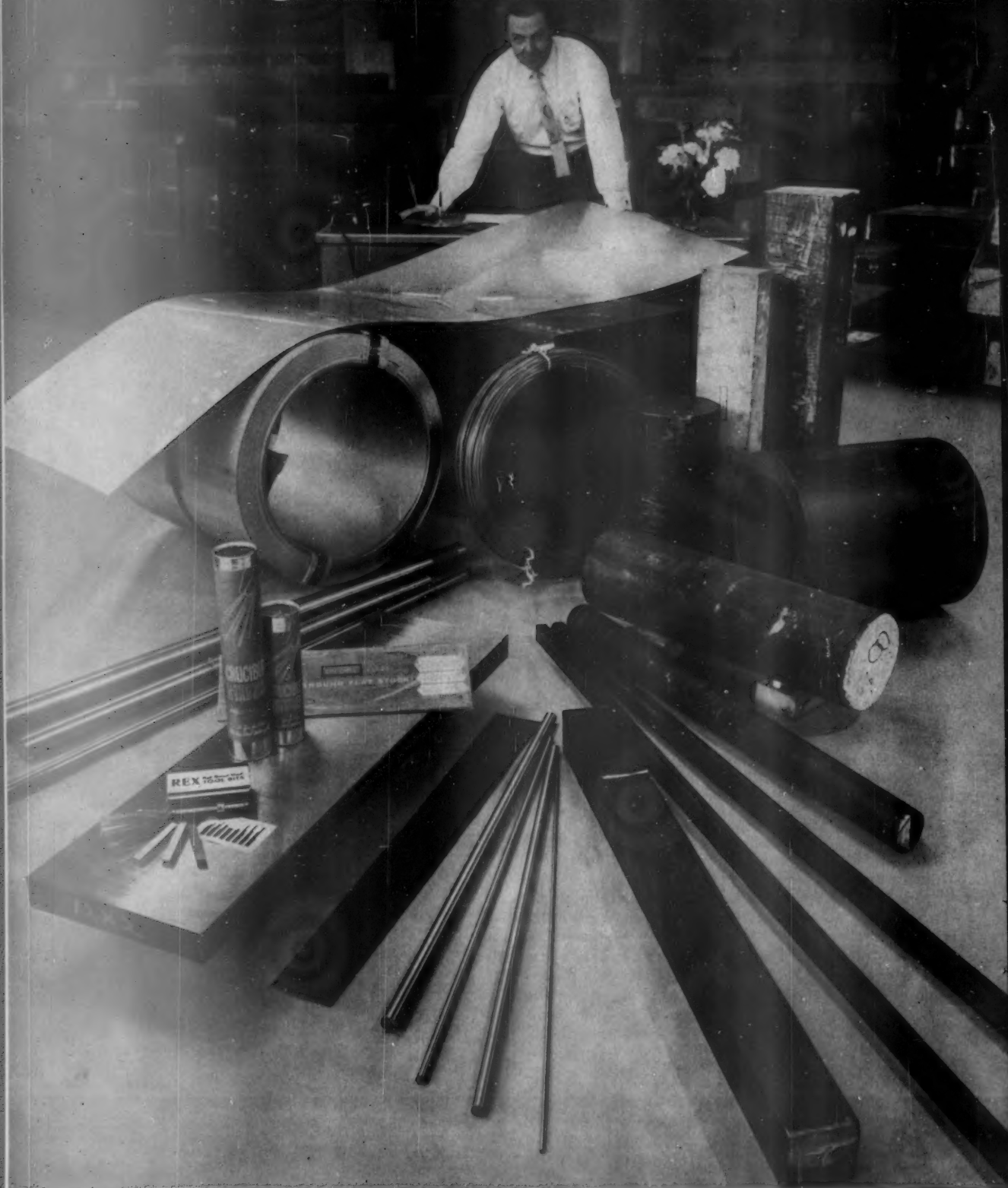
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FEBRUARY 29, 1960

For More Information about ad on following
page Write No. 243 on Inquiry Card—pg. 32→

137

integrated CRUCIBLE steel service



Average Crucible warehouse stocks these and many other specialty steel items in a tremendous range of

sizes and analyses. A single phone call will bring any or all of them to you in the quantity you need.

keeps 16,000 specialty steel items flowing from mills to local warehouses for immediate delivery to you

Every day, thousands of specialty steel items flow from Crucible mills to Crucible's 31 strategically located warehouses — keeping local stocks at levels that meet customers' *maximum* needs.

Here's how these continually-replenished stocks are helping one steel buyer today. He says:

"We reduced plant inventory to cut operating costs and free working capital and space. This is smart business. But it creates problems, too—like when production requisitions an extra-large order of 36" x 120" Type 304 stainless sheet, 20 ga and 2B finish — *and needs it overnight*. I solve this problem by calling the Crucible warehouse. It's set up to give us the kinds of steels we need from stock."

All 31 Crucible warehouses offer in-stock delivery of approximately 16,000 specialty steel items, ranging from tool steels to stainless sheet and wire. They're able to maintain these high inventories because they're part of Crucible's completely integrated operation, from mining the ore to steelmaking to warehouse delivery to you. If you'd like to know all the ways these warehouses can serve you, phone or visit the one near you today. *Crucible Steel Company of America, Dept. PB-13, The Oliver Building, Mellon Square, Pittsburgh 22, Pa.*



Inventory specialists keep warehouse stock records up-to-date to give you fast, accurate answers on availability of every analysis.



Steels you ordered yesterday arrive today at your receiving platform — dependably on schedule.



Warehouses maintain modern equipment, like this electronically-controlled flame cutter, for fast processing of specialty items.

STOCK LIST

Keeps you up-to-date on local stocks of specialty steels. Just ask the Crucible salesman to place your name on the regular mailing list.

One Source
For All
These Steels

TOOL STEELS—Water, oil, air hardening, shock resisting, hot work, plastic and die casting steels in all forms, including bars, sheets, plates, drill rod, hollow bars, forgings and flat ground stocks

HIGH SPEED STEELS—Crucible's famous "Rex"® steels: Rex Thrift Finish rounds, flat rolled and cold drawn flats and squares, drill rod, forgings, sheets, plates, and tool bits

STAINLESS STEELS—Bars, sheet, strip, wire, cold heading wire, metalizing wire, plates, angles

FREE MACHINING STEELS—Crucible Max-el® rounds, hexagons, plates and brake die steel
ALLOY STEELS—Bars, billets, strip and sheet
COLD ROLLED CARBON SPRING STEELS
DRILL STEELS—Hollow and solid drill steels
ALUMINUM EXTRUSION DIE STEELS
HOLLOW TOOL STEEL
HARD FACING ROD
PLASTIC MOLD STEELS
PERMANENT MAGNETS

— and many others

CRUCIBLE STEEL COMPANY OF AMERICA

Branch Offices and Warehouses: Atlanta • Baltimore • Boston • Buffalo • Caldwell, N.J. • Charlotte • Chicago • Cincinnati • Cleveland • Columbus • Dallas • Dayton • Denver • Detroit • Erie, Pa. • Grand Rapids • Houston • Indianapolis • Los Angeles • Miami • Milwaukee • Minneapolis • New Haven • New York • Philadelphia • Pittsburgh • Portland, Ore. • Providence • Rockford • Salt Lake City • San Francisco • Seattle • Springfield, Mass. • St. Louis • Syracuse • Tampa • Toledo • Tulsa

Coming May 23rd

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Paul V. Farrell, Editor
PURCHASING Magazine
205 E. 42nd Street
New York 17, N.Y.

Please reserve for me.....additional copies of the May 23rd VALUE ANALYSIS—at the pre-publication price of \$1 per copy. (Regular price of this giant annual issue will be \$1.50.)

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Name

Title

Company

Address

2/29/60

Industry

Small Tools, Inc., 13700 Beaumont Ave., Cleveland 12, Ohio, has been formed to supply manufacturers with both new and used tools, inspection equipment, and small machines. The company will also specialize in tooling for turret lathes.

As part of a policy to supply quality used tooling on a nationwide basis, the firm offers a 30-day return privilege on most items. The organization is headed by Arthur Wise, formerly of Warner & Swasey and Pesco Products.

A new copper rod rolling mill will be in operation by the end of 1960 at the Linden, N. J., facilities of the Hatfield Wire & Cable Division of Continental Copper & Steel Industries, Inc. The plant is being designed and built by Loewy-Hydropress.

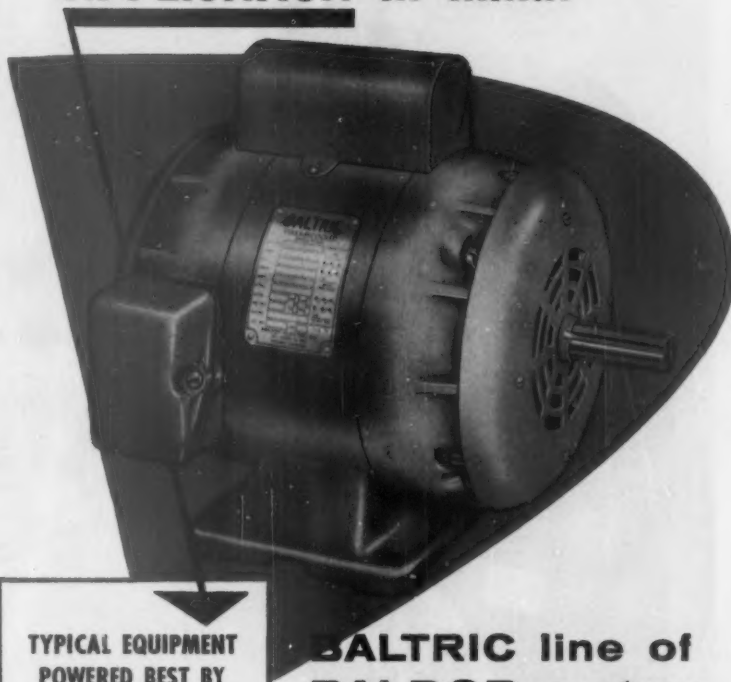
The mill is designed to produce wire rod from both standard wire bars and from continuous cast copper billets. Drawing to magnet wire will be done by existing Hatfield wire mills. The rod mill will be adjacent to Hatfield's new insulated wire and cable plant.

A two-million dollar expansion program has started at the Tyson Bearing Co., Massillon, Ohio, a division of SKF Industries, Inc. Completion of the project in July of this year will enable Tyson to almost triple current tapered roller bearing production in sizes from 4½" to 6" O.D.

Cupples Products Corp., St. Louis, Mo., a fabricator and erector of aluminum building specialties, has been acquired by the Aluminum Company of America.

In Cupples, Alcoa will have for the first time a finished product fabricating division in the architectural field. The company seeks to improve existing building applications of aluminum and bring new products to the field. Three Cupples plants make aluminum doors, window frames, curtain walls, and highway railing.

Specially designed with the APPLICATION in mind!



TYPICAL EQUIPMENT POWERED BEST BY BALDOR MOTORS

- Blowers
- ★
- Fans
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- Ventilators
- ★
- Agriculture dryers,
cleaners, separators
- ★
- Conveyors
- ★
- Woodworking
machinery
- ★
- Abrasive saws
(masonry & steel)
- ★
- Pumps
- ★
- Compressors
- ★
- Machine tools

BALTRIC line of BALDOR motors

No guesswork here! Now you can stop fitting the machine to the motor.

Famous Baldor Streamcooled Motors featuring TEFC construction, are engineered and designed to fit *specific* applications—your guarantee of getting the *one right* motor that will deliver the power and performance to make your equipment operate at top efficiency.

There's a highly trained and experienced Baldor representative near you who will be happy to show you how this "tailored-to-the-job" type of engineering can help cut costs and improve the performance of your equipment. Contact him direct or write to . . .

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For More Information Write No. 244 on Inquiry Card—Page 32



CREATING THE METALS THAT SHAPE THE FUTURE



Quality carbide starts with purity

There's no secret to producing quality carbide at V-R because it's a simple matter of starting with highest purity raw materials and maintaining this purity and uniformity throughout all processes.

At V-R, the finest in modern equipment is effectively combined with the metallurgical knowledge gained through 30 years of carbide research and manufac-

turing experience . . . *this experience means better carbide for every use.*

Above is a good example of V-R's quality control. This X-Ray Fluorescent Spectrograph tells the exact composition and amount of each component in the material being tested — assuring purity of raw materials and uniformity of powdered metal compositions.



VASCOLOY-RAMET

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C-775

For More Information Write No. 245 on Inquiry Card—Page 32

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For More Information about ad on facing page Write No. 246 on Inquiry Card—pg. 32→

PURCHASING




Few men enjoyed the distinction of being "tall in the saddle." To be fast on the draw, to ride and work better than most men, to radiate confidence in everything—these are some of the things a man had to be before he won the compliment. It had to be *earned*.

Much of this applies to wire rope. Like Roebling Royal Blue Wire Rope for a "tall-in-the-saddle" example. Wherever it goes to work it makes a lasting impression. It works harder and better than other wire ropes—it radiates confidence on the job.

Royal Blue's resistance to the ills that wire rope is heir to: impact, crushing, shock, abrasion—is truly outstanding. It is the toughest wire rope you can use for a long time to come.

We have a wealth of Royal Blue data in the forms of literature, workaday applications throughout industry and hard facts on how this "happy breed" can keep a lot of your wire rope money where it belongs—in your pocket. If you will write Wire Rope, John A. Roebling's Sons, Trenton 2, New Jersey, we'll tell you all.

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Your assurance for:

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other Physical Properties
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*You will save Time, Metal and
Money when you specify
Wyckoff Steels.*



WYCKOFF STEEL PRODUCTS •
Carbon, Alloy and Lead
Steels • Turned and Polished
Shafting • Turned and Ground
Shafting • Large Squares •
Wide Flats up to 12 $\frac{3}{4}$ " x 2 $\frac{1}{4}$ "
and 14" x 1 $\frac{1}{4}$ " • All types of
Furnace Treated Steels includ-
ing Carbon Corrected Steels

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Industry

Construction of a \$1,500,000 research center will start early this summer at the **American Brass Co., Waterbury, Conn.** Completion is scheduled for 1961.

Metallurgical, corrosion, and chemical laboratories will use a major portion of the new building, which will also be equipped for experimental production of new products. The company will also expand its staff of research scientists and technicians.

Motorola, Inc. plans to expand its **Phoenix, Ariz.**, semi-conductor plant by at least 100,000 square feet, possibly by as much as 200,000 square feet. Construction of the addition, the second in two years, will cost over \$3,000,000. When completed in 1961, the new plant will greatly increase the company's output of transistors, silicon rectifiers, and diodes.

Approximately \$4 million will be invested in new construction and equipment at the refractories plants of **H. K. Porter Co., Inc.**, at **Bessemer, Ala.**, and **Wellsville, Ohio**. This step will increase the division's refractory brick production and provide new products.

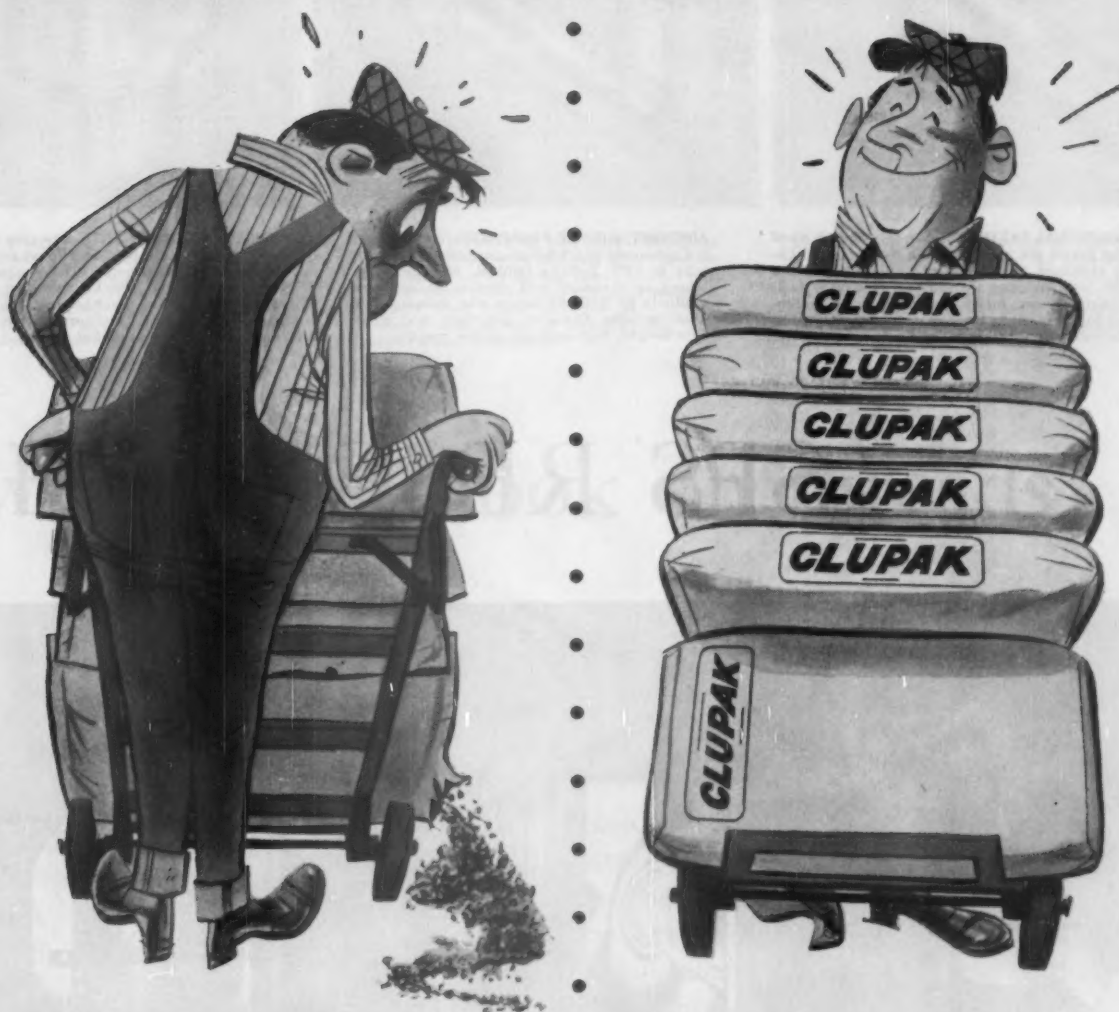
In addition, the company has purchased over 90% of the stock of the **Patterson-Sargent Co., Cleveland, Ohio**, manufacturers of "BPS" paints for industrial and domestic applications.

The **Federal Pacific Electric Co., Newark, N. J.**, a manufacturer of electric service and control equipment, is adding a 35,000 square foot plastics plant to its production line. The new unit will compound, preform, mold, and machine plastic components for the company's products.

Plant capacity is 500,000 pounds of molding compound per month. The new plant will employ 200 workers when in full operation.

For More Information Write No. 247 on Inquiry Card—Page 32

BAG DAMAGE ENDS... when you use multiwalls made of **CLUPAK*** extensible paper!



NEW, TOUGHER KRAFT SOLVES BREAKAGE PROBLEMS

New CLUPAK extensible paper offers multiwall buyers a happy choice . . . Because CLUPAK extensible paper has a patented, built-in stretch and "give," it simply absorbs most shocks and strains that rip, split or tear conventional kraft. By specifying CLUPAK in your kraft bags, you solve your breakage problems once and for all. Multiwalls of CLUPAK fill faster, palletize better and handle easier. For special handling problems, CLUPAK can be supplied with a rough outer-sheet to provide far better anti-slide protection for your product.

Millions of these new multiwalls have proved the advantage of this tougher, stronger paper. Plan a trial shipment of multiwalls, made of CLUPAK, as part of your next bag order. See the difference for yourself. Your customers are sure to like the extra service of a better, more dependable bag . . . and so will you.

For More Information Write No. 248 on Inquiry Card—Page 32
FEBRUARY 29, 1960



*Clupak, Inc.'s trademark for extensible paper manufactured under its authority and specifications. Clupak, Inc., 530 Fifth Avenue, New York 36, N. Y.

For More Information about ad on following page Write No. 249 on Inquiry Card—pg. 32—>

UNBRAKO



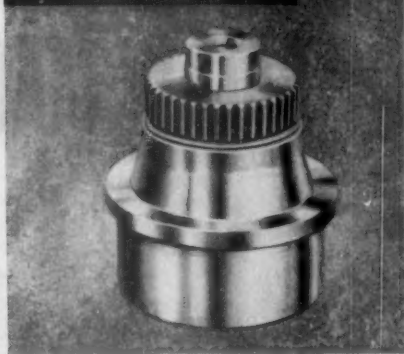
INDUSTRIAL FASTENERS like this Socket Head Cap Screw are produced to a dynamic reliability standard as a result of SPS research. The SPS line includes a limitless variety of self-locking screws, locknuts and precision fasteners for everything from massive machinery to the most minute products.

SPS AIRCRAFT



AIRCRAFT/MISSILE FASTENERS like this bolt are produced to ultra-high performance standards at SPS. Today's lightest, strongest fasteners in standard and special designs are products of SPS. Research and development work includes titanium, beryllium and other light-weight, high-strength exotic metals.

SPS NUCLEAR



NUCLEAR COMPONENTS like this cap for a core housing are held to almost unbelievable dimensional tolerances. The nuclear energy field depends on SPS for threaded fasteners, control rod drive mechanisms, motor tubes, core components, instrumentation housings and many other essential parts.

SPS RESEARCH is



Photoelastic study on a Polariscope in the SPS Laboratory for advanced research proves that new UNBRAKO Hi-Life Thread Root distributes stresses evenly over a large, smooth radius, doubling fastener fatigue life and increasing tensile strength.

HALLOWELL



SHOP EQUIPMENT for industry and schools is made to the same superior quality standards as other SPS products. The Hallowell line offers broad coverage of standard and special needs in work benches, shelving, and similar equipment. Ruggedness and space efficiency are well identified with Hallowell.

COLUMBIA



OFFICE FURNITURE like this handsome Columbia Nine-to-Five unit sets an office apart with distinctive styling and color combinations. The complete line includes efficiently designed, durable steel office furniture, plus special units, a wide choice of smart chairs, filing cabinets and accessories.

I. E. I.



CAPACITORS FOR ELECTRONICS bearing the IEI trademark are widely used for subminiature circuitry and transistorized applications. This SPS company makes both aluminum and tantalum capacitors, including the lightest and smallest per given capacitance in the industry, to the highest quality standards.

rewriting the book on threads

Out of the SPS laboratory has come a whole new concept in thread design. Engineers created a radiused thread root based on known laws of stress. A precision contour now eliminates sharp corners, or "hot spots", where stress concentration formerly caused fatigue cracks. The streamlined root provides a smooth pattern of stress distribution.

The reliability of this research-inspired thread root is achieved directly on the production line. SPS makes and maintains its own thread roll dies. Skilled machine operators check die performance as often as every 50 pieces.

Gauges at production stations are calibrated

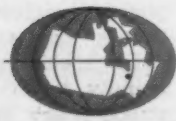
daily against standards set by the SPS Metrology system . . . industry's most advanced thread control facility.

UNBRAKO socket screws . . . the advanced fastener for the '60's . . . are but one outstanding example of the tireless SPS effort to create reliability through research. Born in the laboratory . . . formed to strict production quality standards . . . these improved fasteners are now in use throughout industry.

This is SPS reliability at work for you. Write for a 20-page booklet called, "The Root of the Thread", which presents a comprehensive description of this development.



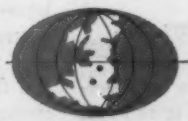
UNITED STATES



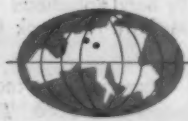
CANADA

SPS

where reliability replaces probability



GREAT BRITAIN



EUROPE

STANDARD PRESSED STEEL COMPANY, Jenkintown, Pa. • SPS Western, Santa Ana, Calif. • The Cleveland Cap Screw Company, Cleveland, O. • Columbia Steel Equipment Div., Fort Washington, Pa. • International Electronic Industries, Inc., Nashville, Tenn. • National Machine Products Div., Utica, Mich. • Standco Canada, Ltd., Toronto, Canada • Unbrako Socket Screw Co., Limited, Coventry and Sheffield, England • Unbrako Schrauben GmbH, Dusseldorf and Koblenz, W. Germany.

Book Reviews

Effective Public Speaking Techniques

By Harry Simmons
Chilton

\$5.00

Effective public speaking is an absolute must for the purchasing executive that wants to get ahead. The P. A. should be prepared to address sales meetings and general management meetings. Needless to say, management is bound to evaluate the P. A. largely upon the ability with which he expresses himself. Purchasing men who wish to take an active part in N. A. P. A. activities must be able to express themselves. If they are ambitious to advance to officer level in their associations (and the honor that comes is more than worth the effort that must be expended), they must be able to give speeches. Many P. A.'s have achieved management recognition by carrying their public speaking activities even further; they have volunteered to represent their company at various speaking engagements such as meetings of civic and fraternal groups in their community.

Effective Public Speaking Techniques is a worthwhile addition to the library of the P. A. who wants to express himself better. All facets of public speaking (including addresses to business meetings, etc.) are covered in detail in easy-to-read fashion. For the man interested in making his first speech, the book can be invaluable. For the veteran speaker, it provides tips that make its reading worthwhile.

Selecting, Planning and Managing Office Space

By Beryl Robichaud
McGraw-Hill Book Company, Inc.

\$8.50

Purchasing executives will welcome this book. This is true even if their interest in office space does not extend beyond their own departments. More efficient and

economical use of office space is sure to result from the ideas and methods in this guide. It is divided into four major sections: Selection of location and building for the office; Determining space requirements and planning the office interior; Furnishing and decorating the office; Management of office space. Although it covers a wide area this 361 page book does not neglect details such as, a 12-point checklist for cleaning and maintenance of office furnishings. It also includes: suggested floor plans to improve work flow; a typical one floor office with location assignments; and actual memorandums to employees involved in a major relocation.

V.A. Is A Continuing Job

(Continued from page 86)

equipment, as well, to produce cigarette cup labels and ten-pack cartons for R. J. Reynolds' products. The expected savings from this expansion are already evident.

Furthermore, this very same equipment is now being used for the production of plain foil, laminated foil, printed foil cartons, and other foil packaging materials for outside customers.

The final example of our value analysis program is the work currently underway. We are further expanding our plant to house facilities for a completely new and revolutionary system of melting pig, ingot, and scrap aluminum. We will also be able to cast molten metal into a continuous aluminum strip (one quarter of an inch thick) ready to be cold rolled into various gauges from light sheet down to foil. No hot mill equipment is needed.

This new system will go into operation this spring at a cost 20% less than for conventional hot mill rolling equipment. We have already run several million pounds of this new continuous cast metal and found the resultant foil to have improved tensile strength and greater resistance to pin holing—the never ending problems of foil rolling people.

► END

Buying On Approval

(Continued from page 88)

"Negligence in fire, theft, storm or accident cases is never presumed and the mere happening of damage by such means is no evidence of negligence. Negligence is a positive matter and before it can be imputed to a party to a suit facts must be alleged and proved showing negligence or circumstances must be shown from which negligence may be reasonably inferred and that such negligence was the proximate cause of the injury complained of.

"Where this relation subsists it devolves on the custodian of the property to use ordinary care and diligence in the safe-guarding of the other's property. If it is lost through the failure to observe such duty he is answerable, but of course, he is not responsible for any losses not occasioned by the ordinary negligence of himself or his servants.

"He will not therefore be liable for any loss by thieves or for any taking from him or his servants by force. By ordinary care, as the

REFERENCES

- The Elges Cotton Case, 89 U. S. 180, October, 1874
- D. M. Osborne & Co. v. Francis, 18 S.W. 591, Wisconsin, November 25, 1893
- Davis Gasoline Engine Works Co. v. McHugh, 88 N.W. 948, Iowa, January 28, 1902
- Montgomery Ward & Co. v. State, 133 Pac. 2d 1008, Kansas, February 10, 1943
- Kennedy v. Clark, 51 Atl. 2, Vermont, November 20, 1901
- Ablon v. Hawker, 200 S.W. 2d 265, Texas, January 24, 1947

term is used, is meant such diligence as an ordinarily prudent person exercises in matters of his own business."

To this was added the all important suggestion "Then, too, parties may and frequently do make special contracts limiting liability when not contrary to public policy or statute and the responsibility will be measured and determined by the terms of such contract." ► END

You can do more with

DELTA



No matter how you look at it...

DELTA PRICES ARE RIGHT

Look at price alone—you'll find that Delta Industrial Tools are competitive with anything in their class. Then compare price with built-in value that means low, low maintenance and less downtime—you'll find that Delta Tools *cost less to use* than any other tools you can buy.

Now, to price and quality, add the fact that Delta makes the most complete line of metalworking and woodworking tools in the world—for production, for maintenance, for crating and shipping. And remem-

ber that Delta quality and Delta economy—plus fast, dependable service—are yours through fine industrial distributors in your area. Look in the Yellow Pages under "TOOLS" or "MACHINERY."

No matter how you look at it—in lowering costs, in cutting downtime, in simplifying inventory—you can do more with Delta because Delta does so much more for you. Why not standardize on genuine Delta Industrial Tools and money-saving accessories throughout your plant?



FOR YOUR FILES—catalog of the world's most complete line of industrial tools—pictures and describes 61 machines, 302 models, over 1400 accessories. For free copy, write: Rockwell Manufacturing Co., Delta Power Tool Division, 28B N. Lexington Ave., Pittsburgh 8, Pa. In Canada: Rockwell Manufacturing Co. of Canada, Ltd., Guelph, Ontario.

DELTA INDUSTRIAL TOOLS

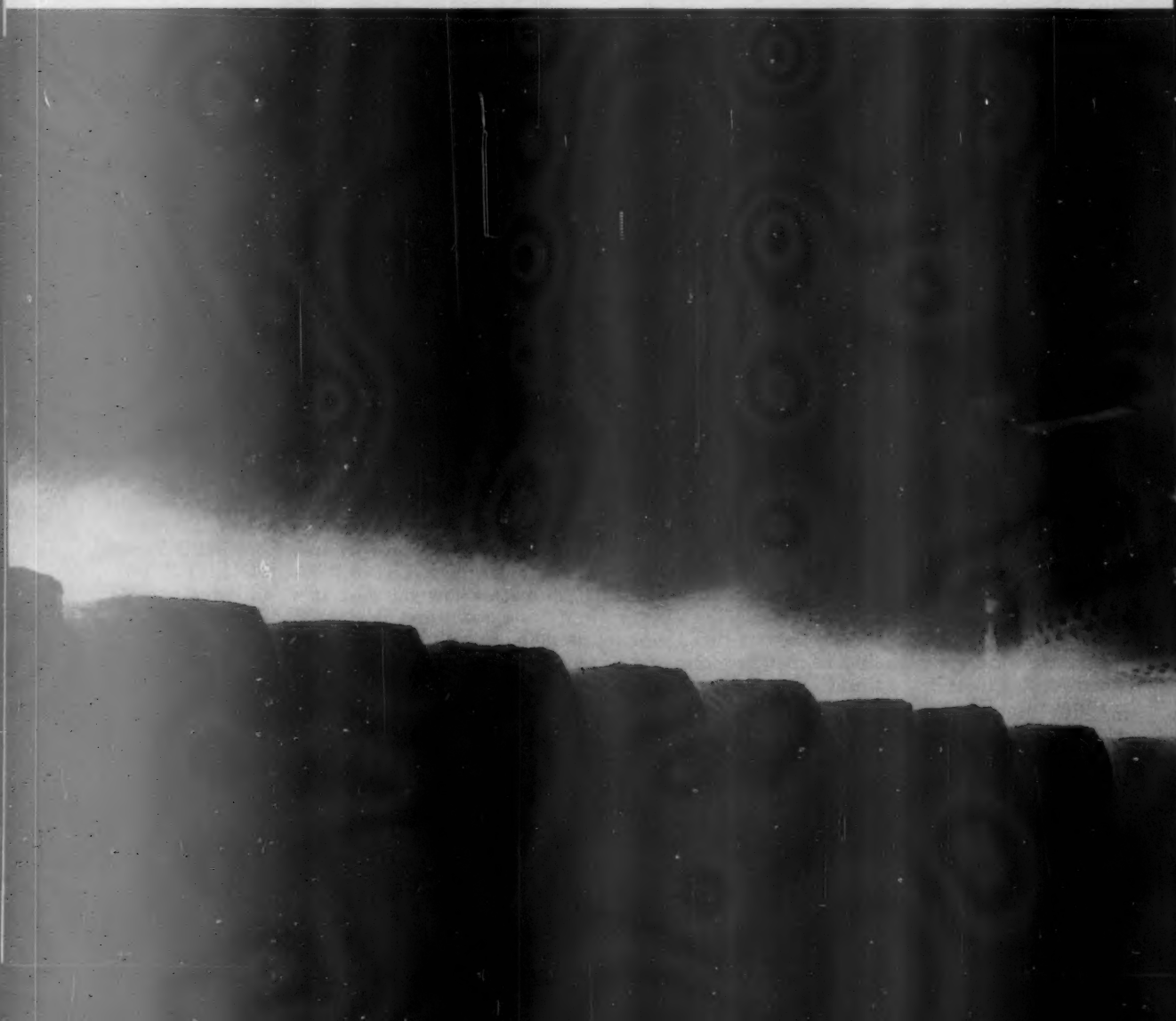
another fine product by

ROCKWELL



Republic Reports on OPERATION 375

With a huge increase in capacity just completed, Republic is making another major move . . . spending 375 million dollars *more* for improvement and replacement of present facilities and addition of certain new facilities. Already allocated funds will be spent over the next three to four years. Here is how you will benefit.





"The new \$375,000,000 capital expenditure marks our intense emphasis on customer service. In the decade ahead, customers' needs will change even more dramatically than in the past few years. We will anticipate those needs."

Charles M. White, Chairman



"We will be concentrating on changes, replacements, and additions which will raise efficiency. Raise efficiency and you improve product quality. Improve quality and you serve customers better."

Thomas F. Patton, President



"Customers continue to increase the efficiency of their plants with more modern and more costly equipment. OPERATION 375 will enable us to provide the finishes, sizes, and other specifications required by this new equipment."

**Norman W. Foy
Vice President in Charge of Sales**



"Customers will exercise their right to be more demanding. We are building now to meet specifications which are advanced today but which, we are convinced, will become usual among our customers in 5 or 6 years."

**Ernest R. Johnson
Vice President in Charge of Operations**



REPUBLIC STEEL

*World's Widest Range
of Standard Steels and Steel Products*

For More Information Write No. 251 on Inquiry Card—Page 32

Purchasing People In The News (Continued from page 57)

American Airlines has named **Robert A. Goebel** as vice president, purchasing and stores. Mr. Goebel has been assistant vice president in the department since joining the company in August, 1956. He will be in charge of the



Robert A. Goebel

airline's major purchasing and stores activities at Tulsa, Okla. and at New York's LaGuardia Airport. He will provide technical direction for related activities in American's field offices. He will be located at 100 Park Avenue, New York City. Before joining American Mr. Goebel was with Studebaker-Packard and earlier with the Ford Motor Company purchasing. He was graduated from the University of Illinois with an A. B. degree in economics and accounting in 1939. He earned an LL.B degree from the University of Michigan Law School in 1942.

Sun Chemical Corporation, New York, N. Y. has announced the formation of an integrated purchasing department for the Paints and Finishes Group. **J. R. McCaffrey** will be in charge of all purchases for the new group. Mr. McCaffrey came to Sun in April 1959 from Union Carbide Corporation where he had been assistant divisional manager of purchases. He has been purchasing agent at Sun since. He has a B. S. Degree in Chemical Engineering from Yale and he ex-

pects his Master's Degree in Business Administration from Columbia University's Graduate School of Business in June.

Frank B. Mulford has been named manager of purchasing for **Standard Steel Corporation**, Los Angeles, Calif. Mr. Mulford formerly was purchasing agent for Southwest Welding and Manufacturing, Alhambra, Calif. He also has been with the steam tube division of Westinghouse Co. in Lester, Pa. He is a member of the Purchasing Agents Association of Los Angeles, and has served as chairman of various committees for the organization.

Peter A. Tullio became director of purchases for **Interstate Vending Company**, Chicago, Ill. Before coming to Interstate Mr. Tullio was general manager and assistant secretary for Federated Vendors, Inc., Chicago, and purchasing agent and assistant divisional manager for Union News Company's midwest division.

Appointment of **Thornton P. Vail** as director of purchases for **Allied Chemical Corporation's Plastics and Coal Chemicals Division**, New York, N. Y., has been



Thornton P. Vail

announced. Mr. Vail joined Allied Chemical in 1941. He served with its Solvay Process and Barrett Divisions and was named

assistant secretary of the Company in 1955. Most recently he has been assistant director of Allied Chemical's Legal Department. He is a graduate of Colgate University and Harvard Law School.

Harry D. Ferguson became purchasing agent at **Rockwell Manufacturing Company's Instrument Division**, Tulsa, Okla. Mr. Ferguson joined the com-



Harry D. Ferguson

pany in 1957 as a buyer with the general purchasing department, Pittsburgh headquarters. Before that he had been a buyer with the company's Kearney, Neb., and Uniontown, Pa., divisions. He is a graduate of Washington & Jefferson College.

James G. Daly has joined **The American Fabrics Company** of Bridgeport, Conn. as assistant purchasing agent. Mr. Daly was formerly assistant purchasing agent at the American Chain Company, York, Penna.

Robert L. Morris has been made purchasing agent at **Faultless Caster Corporation**, Evansville, Ind. Mr. Morris was purchasing agent for Hoosier Cardinal Corp., of Evansville, for 14 years. For the past two years he has been a buyer for Whirlpool Corp. at Marion, Ohio. He attended the University of Tennessee.



Put yourself in the grinding room picture when you buy coated abrasives

Imagine that you are looking over the shoulder of the man at the grinder...

Check the close tolerances he works to... the speed with which each piece has to be processed... the constant effort of men and their supervisors to keep production and quality up... costs down. It's easy to see why Coated Abrasives are one of the most important precision cutting tools you use today.

If you were the man at that grinder—or the man who supervises him and is responsible for his output—wouldn't you want to make sure you had the best available abrasive belts to help you maintain production and quality?—to help you keep grinding costs at the absolute minimum?

3M Brand Coated Abrasives can do just that. They are the finest production cutting tools of their kind on the

market today. They are precision engineered and precision made for the jobs they are to perform. The 3M Company is the world's largest manufacturer of coated abrasive products. 3M's own research laboratories keep 3M Coated Abrasive products *first* in new developments. 3M's nationwide service organization is equipped to give your company both technical advisory service and immediate dependable delivery of coated abrasive products in any amounts or special requirements.

No matter what your purchasing standards for coated abrasive products—whether value analysis, E.O.Q., or just a better way of doing things—it will pay you to investigate 3M Coated Abrasives. Ask your 3M Representative how he can help you in purchasing abrasives. Write to 3M Co., St. Paul 6, Minn., Dept. ABU-20.

"3M" is a registered trademark of Minnesota Mining and Manufacturing Company, St. Paul 6, Minnesota.



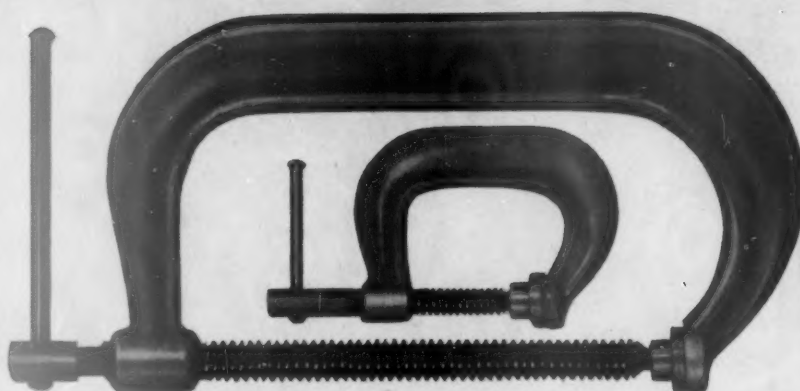
3M Coated Abrasives

3M BELTS

MINNESOTA MINING AND MANUFACTURING COMPANY

...WHERE RESEARCH IS THE KEY TO TOMORROW





Special feature: Even under heavy hammer blows, the full-swivel Perma-Pad won't come off. Spindle Screw designed for extra strength, with specially cut threads for easier turning under heavy loads.

Purchasing Agents Watching Replacement Costs Specify PROTO C-Clamps



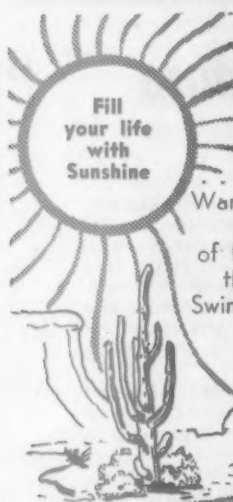
Available from your Proto distributor in a full 7 sizes up to 12" capacity, Proto's 400-Series all-purpose C-Clamps feature: Forged alloy steel—Regular or Spatter-resistant (Cadmium plated) finishes—extra-deep throat—Minimum proof test 3300 to 9300 lbs. Meet Fed. Spec. GGG-C-406a. Soon to come—100-Series medium-service type.



Division of Pontoloni Tool Industries, Inc.

2215 Santa Fe Ave., Los Angeles, California • 515 Allen Street, Jamestown, New York • 1715 Oxford East, London, Ontario, Canada

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Fill
your life
with
Sunshine

VISIT PHOENIX, ARIZONA

... winter headquarters of Mr. Sun. Warm, sunny days—cool, crisp nights. In a garden setting 10 miles east of Phoenix stands Jokake Inn—one of the Southwest's finest resort hotels. Swimming Pool, Tennis Courts, Putting Greens. All resort activities. Our own golf and riding facilities. Distinguished clientele. Informal atmosphere, casual dress.



Season:
Nov. 15
to May 1

another of the great

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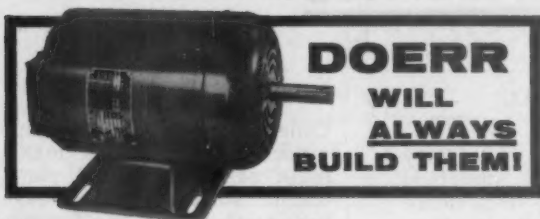
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Experience: Eight years motion and time study 11½ years general purchasing for major food processor, including can manufacturing. Purchasing covers general purchasing, production planning, package designing, inventory control. Interested in purchasing or production management.

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GENERAL

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Education: BS in educ. with a major in educ. and a minor in bus. adm.

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HOW TO APPLY

Listings in this department are offered without charge. Both purchasing department personnel interested in changing jobs and employers in search of replacements or additions to their departments may take advantage of this service. When writing, specify whether you want the applicant's form or the employer's form. Address all correspondence—whether for forms, or in answer to an employment advertisement, to: Box No., Employment Service Department, Purchasing Magazine, 205 East 42nd Street, New York 17, New York.

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Experience: Twenty years extensive purchasing experience—all phases single plant procurement within a multi-plant organization for a national and international manufacturer of soap and edible products. This experience ranged from purchasing trainee to purchasing agent. Buying production, research, and maintenance items.

Education: BS. in B.A. large Eastern University, major—banking & finance. Graduate and undergraduate courses in accounting, statistics, business law, and industrial management.

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Write: Box 128

Experience: Eight years experience in all phases of purchasing for large corporation, including all steel purchases and raw materials, castings, forgings, stationery, lubrication, maintenance equipment, tooling, dies and fixtures. Four years in production control. three years of engineering.

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Write: Box 129

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Education: B. S. degree, bus. adm.

Will relocate.

Write: Box 130

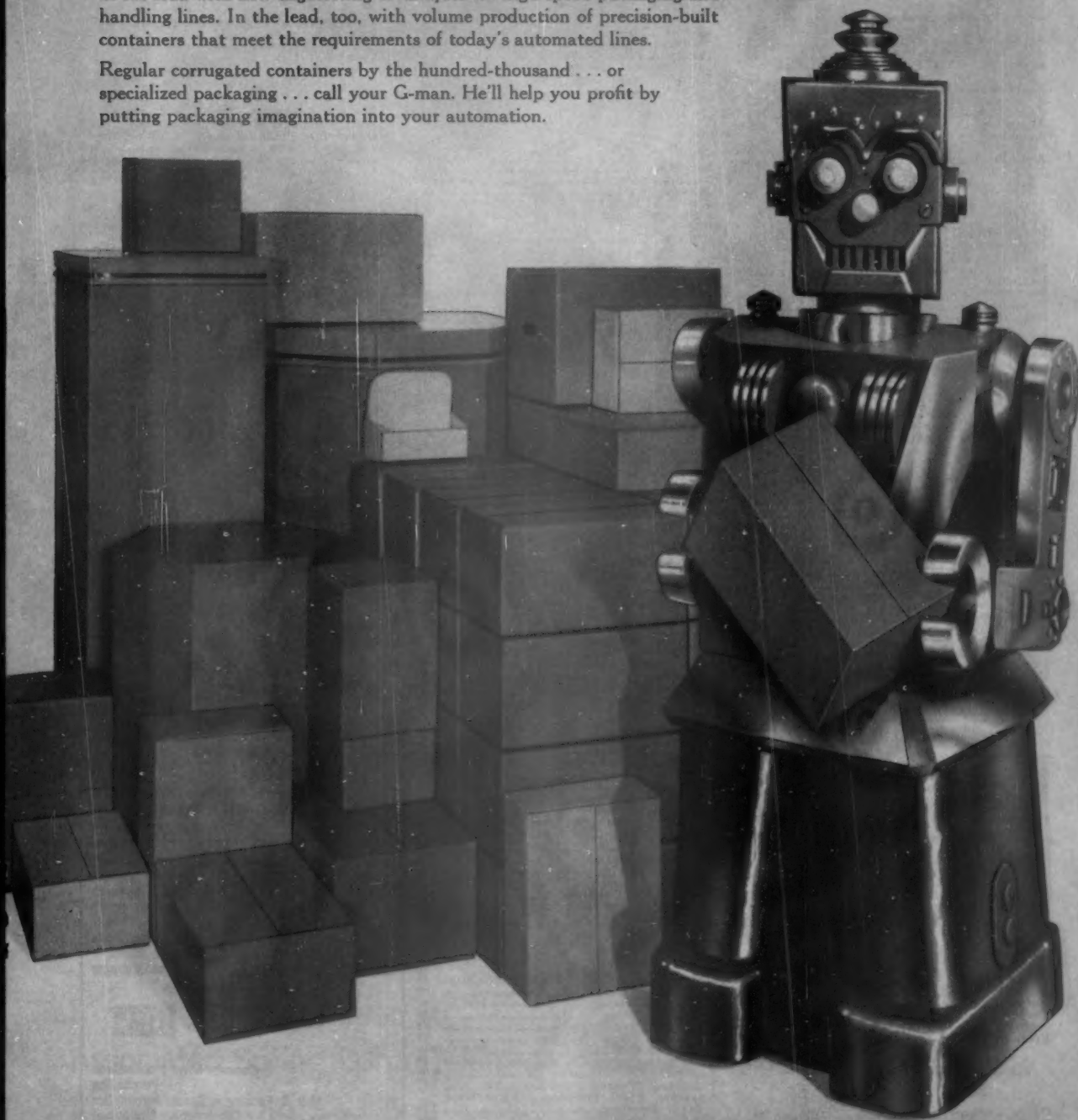
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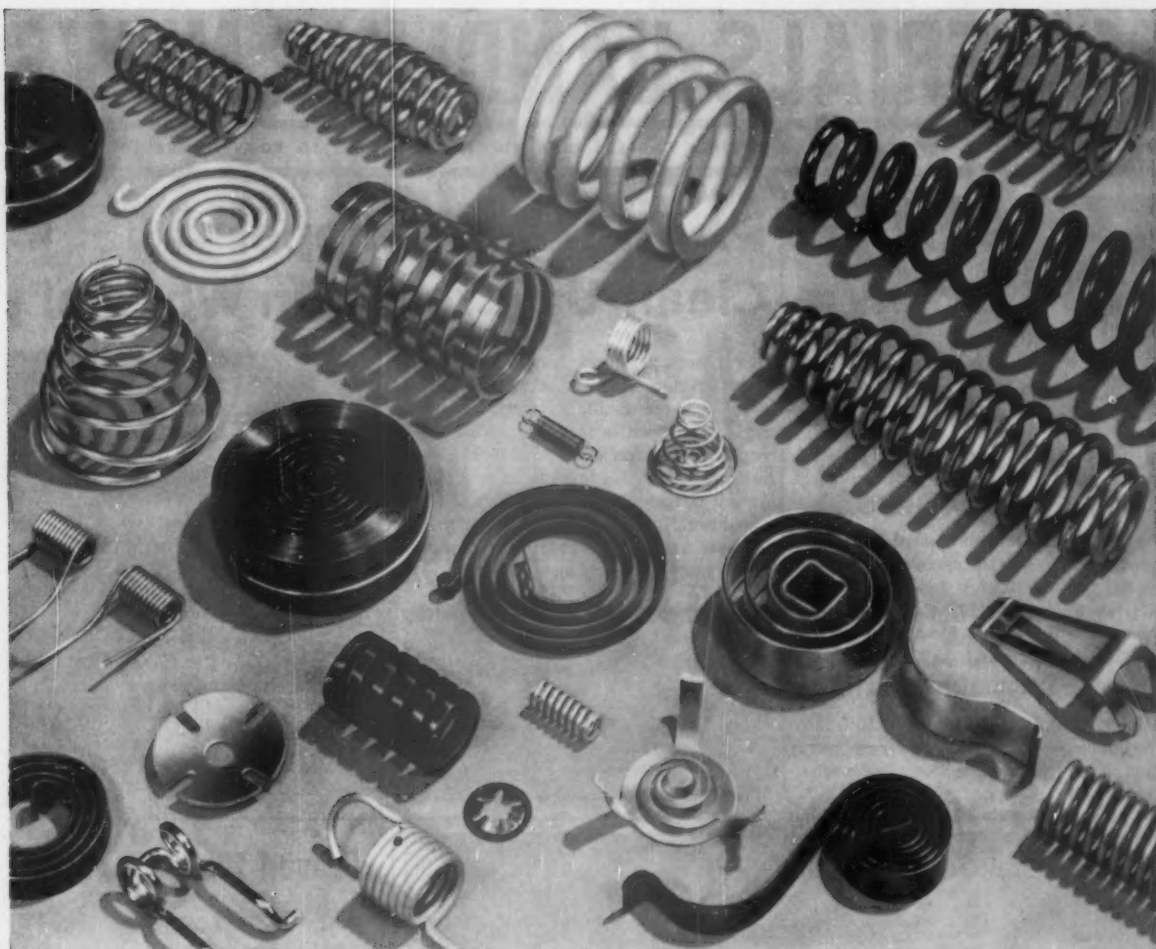
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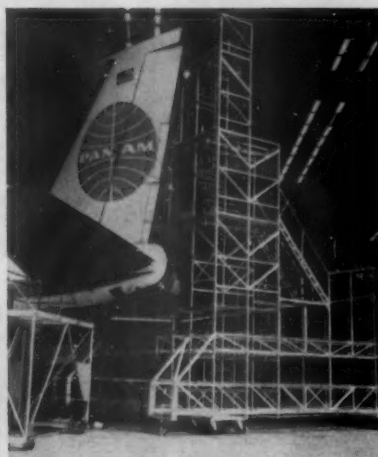
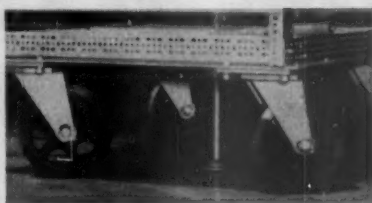
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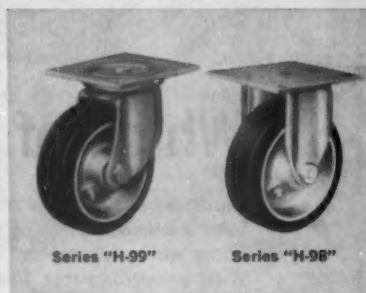
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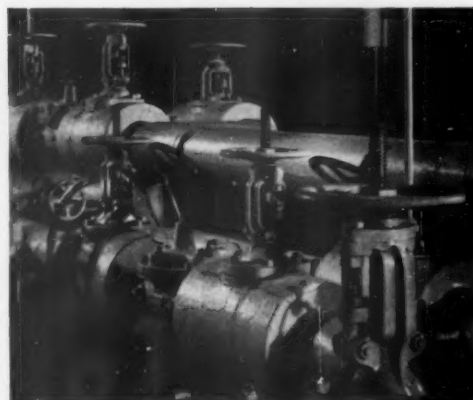
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